STORMWATER MANAGEMENT PLAN

FOR

TOWN OF YORK, MAINE

MS4 General Permit Effective July 1, 2022
Initial Submittal to Maine DEP March 19, 2021

Table of Contents

APPENDICES

1 INTRODUCTION

1.1 Overview of Regulatory Program

The Town of York is subject to the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) which was issued by the Maine Department of Environmental Protection (DEP) with an effective date of July 1, 2022. Because the permit is a Clean Water Act permit, it is limited to a duration of five (5) years and is due to expire on June 30, 2027. However, if the Maine DEP does not issue another Permit by June 30, 2027, the permit will be administratively continued, and the Town may need to update this Stormwater Management Plan to show what activities it will complete during the continued time period.

Communities are regulated under this program when and if they are identified as having "Urbanized Areas" in their municipal boundary. An Urbanized Area is a U.S. Census-defined term, applied to a large area (50,000 people or more) that has a high population density and/or a high percentage of impervious cover (hard scape surfaces like parking lots or buildings). Both of these criteria (high population density and high percentage of impervious cover) cause an area to be at risk for adverse surface water quality impacts from polluted stormwater discharges.

The U.S. Environmental Protection Agency (USEPA) and Maine DEP began regulating communities for their stormwater discharges using the Urbanized Area criteria in 2003. The Town of York became regulated in 2013 based on the 2010 census.

Once a community becomes regulated by the MS4 General Permit, only the Urbanized Area portions of the town are regulated. As each U.S. Census is published, if the Urbanized Area changes (based on changes to the population or impervious cover), additional areas can be added to the regulated area only after a new MS4 General Permit is issued. Once an Urbanized Area is regulated by the MS4 General Permit, it cannot be removed from regulation, even if a subsequent census identifies it is no longer classified as an Urbanized Area. So, the area regulated by the MS4 General Permit can either grow larger or stay the same size, but it cannot become smaller. Appendix A shows the Urbanized Area that is regulated by the 2022 MS4 General Permit for the town, which is based on the 2010 U.S. Census Urbanized Area data. The 2022 MS4 General Permit specifically does not include any areas identified by the 2020 U.S. Census.

1.2 Cooperation Between Regulated Communities

There are 30 municipalities in the State of Maine that are subject to the 2022 MS4 General Permit. There are also two transportation agencies which are subject to their own MS4 General Permit, and eight state/federal agencies that are subject to a third MS4 General Permit (which are called "nested" MS4s). The regulated MS4s (municipal, transportation and

state/federal) have a good history of cooperating on a state-wide basis to complete activities required by the General Permit such as public outreach and training as a cost saving measure and to improve the quality of compliance.

When the Town of York became regulated in 2013, it joined the four other regulated communities in York County to implement some elements of the permit cooperatively. The four other communities are Berwick, South Berwick, Eliot and Kittery. The Towns have branded their cooperative stormwater efforts with the name, "Southern Maine Stormwater Working Group" (SMSWG, pronounced SIM-see-wig).

Similarly, the Bangor area MS4s have formed the Bangor Area Stormwater Working Group (BASWG), the Lewiston-Auburn area MS4s formed the Androscoggin Valley Stormwater Working Group (AVSWG), and the Portland Area regulated MS4s formed the Interlocal Stormwater Working Group (ISWG). For some public education requirements, all of the stormwater working groups are working cooperatively as identified in this plan.

In implementing the 2022 MS4 General Permit, the Town of York with other entities statewide and through SMSWG to complete some requirements, hires a third party-consultant to implement some requirements and implements other requirements using municipal staff. This plan describes which elements will be completed individually, regionally or as a state-wide effort.

1.3 Stormwater Management Plan

Though the MS4 General Permit is a Clean Water Act Permit, it does not specify numeric effluent limitations (concentrations that a stormwater discharge must meet). Instead, the MS4 General Permit specifies narrative effluent limitations, in the form of Minimum Control Measures (MCMs).

Each of the historically issued MS4 General Permits (in 2003, 2008, 2013, and 2022) have required that the regulated MS4s develop and implement a Stormwater Management Plan (SWMP or Plan) to coincide with the effective dates of the General Permit.

This SWMP describes how the Town will implement Best Management Practices (BMPs) to meet the six MCMs, set forth in Part IV(C) of the 2022 MS4 General Permit. The six MCMs that are required to be addressed in this Plan are:

1 Education/Outreach Program
2 Public Involvement and Participation
3 Illicit Discharge Detection and Elimination Program
4 Construction Site Stormwater Runoff Control
5 Post-Construction Stormwater Management in New Development and Redevelopment
6 Pollution Prevention/Good Housekeeping for Municipal Operations

The 2022 MS4 General Permit requires that for each MCM, the Town must: define appropriate BMPs; designate a person(s) responsible for implementing each BMP; define a date or timeline with milestones for implementation of each BMP; and define measurable goals for each BMP.

The prior MS4 General Permits also required that the SWMP address these six MCMs, but the specific requirements related to each MCM have changed with each permit. In many instances, the BMPs in this plan expand upon or continue BMPs that were developed under prior General Permits.

In addition to addressing the six (6) Minimum Control Measures, the Town must address several impaired waters requirements. Sections 1.4 and 1.5 describe the water quality status in the Town, and what watersheds are considered to be priorities. Sections 1.6 through 1.9 describe how permit coverage is obtained, how the SWMP is modified (when needed), when public notice is required and annual reporting requirements.

The Maine DEP will review this Stormwater Management Plan and determine if the Town is controlling pollutants to the "Maximum Extent Practicable". The term "Maximum Extent Practicable" is defined in the Clean Water Act. The term means available and feasible considering cost, existing technology, and logistics based on the overall purpose of the project. Effectively, the Town is allowed to consider these concepts as they select Best Management Practices (BMPs) to meet permit requirements, but the Maine DEP decides if the Town is meeting the "Maximum Extent Practicable" standard.

The SWMP is not an enforceable document and so some flexibility is built in to the BMPs to allow communities to engage in an adaptive management approach to mitigating or eliminating the discharge of pollutants to and from its regulated small MS4. This allows the Town to adjust BMPs throughout the Permit Cycle if needed based on evaluations of their effectiveness, changing conditions, specific local concerns, or changes in other factors. Some SWMP Modifications require DEP review and approval and public notice. Section 1.6 Obtaining Coverage to Discharge, and Section 1.8 SWMP Modifications describe the requirements associated with modifying a SWMP.

1.4 Water Quality and Discharges to Impaired Waters

The 2022 MS4 General Permit contains the following requirements for discharges to waters that are not meeting their fishable and swimmable standards (a.k.a. impaired waters):

(1) If the waterbody to which a point source discharge drains is impaired and has an EPA approved total maximum daily load (TMDL), then the SWMP must address compliance with the TMDL waste load allocation ("WLA") and any implementation plan. The GP does not authorize a direct discharge that is inconsistent with the WLA of an approved TMDL. This requirement applies only to TMDLs that were approved by EPA as of 10/15/2020.

(2) If a TMDL is approved or modified by EPA after 10/15/2020, the Maine DEP will notify the permittee if any changes are needed to the SWMP and may take other actions regarding the approved TMDL as identified in the 2022 MS4 General Permit.
(3) If an MS4 has a discharge to an Urban Impaired Stream, it must develop and implement three (3) BMPs to address the water's impairment, unless the DEP has determined the MS4 discharge is not causing or contributing to the impairment.

The Fact Sheet that was issued with the 2022 MS4 General Permit also contained a strongly worded recommendation for MS4s to consult with the Maine DEP Division of Environmental Assessment regarding impaired waters that do not have approved TMDLs. The consult would be focused on identifying the root cause of the impairment and developing a strategy to reduce the discharge of pollutants of concern if the permittee is causing or contributing to the impairment.

Section 1.4.1 describes generally how the State evaluates surface waters and describes TMDL documents and Urban Impaired Streams. Section 1.4.2 describes the status of the waters that receive discharges from the Town's MS4. Section 1.4.3 describes how the Town is addressing any impairments which have MS4 requirements.

1.4.1 State Water Quality Assessments

The State of Maine is required by the Clean Water Act to identify water quality classifications for each surface water in the State, and then to assess whether each of those waters is meeting its designated classification standards. Maine has four classifications for freshwater rivers, three classes for marine and estuarine waters, and one class for lakes and ponds. Each classification identifies a use and set of water quality standards for the water. The classifications, uses, and standards are described and assigned to the various waters in the Maine Statutes (Title 38, Sections 464 through 469).

Assessments as to whether each water is achieving its designated classification are based on data that is obtained from a number of sources depending on the type of water being assessed:

- Lakes and ponds are assessed primarily through data obtained by the DEP and regional entities and lake associations. The regional and lake association data is coordinated through the Lake Stewards of Maine (Volunteer Lake Monitoring Program).

- Marine and Estuarine waters are assessed by evaluation of data obtained from the DEP, Maine Healthy Beaches, Department of Marine Resources, Marine Environment's Gulf Watch, Gulf of Maine Council, and several other academic and non-profit organizations.

- Wetlands are assessed primarily using data obtained from the DEP Biomonitoring

Program.

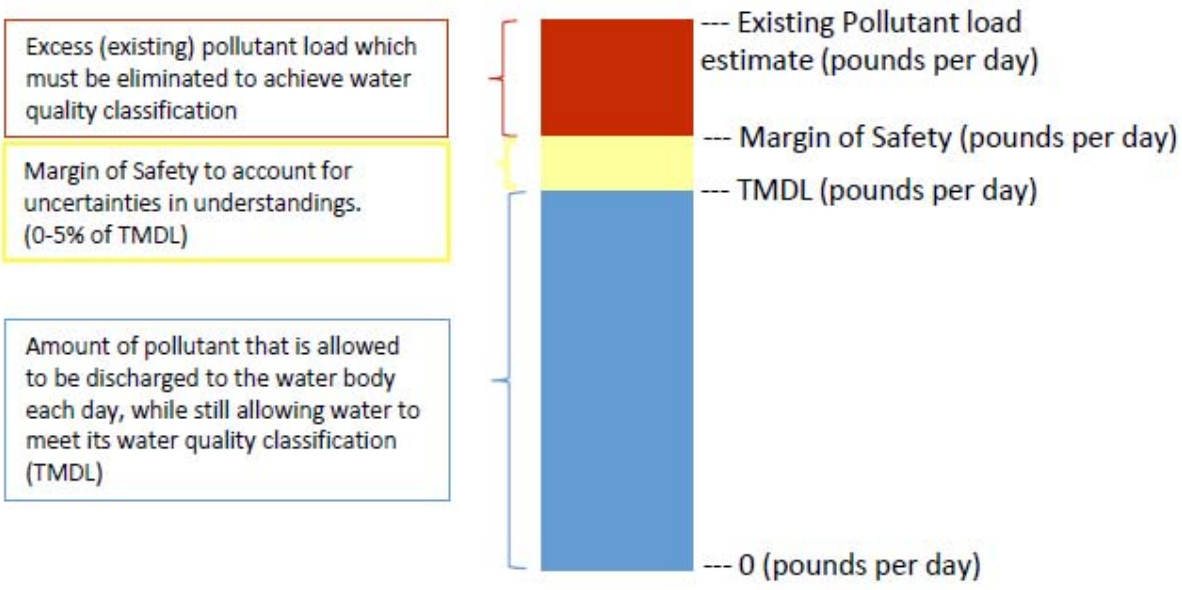
- Rivers and Streams are assessed using data from the DEP Biomonitoring Program, Surface Water Ambient Toxics (SWAT) Monitoring Program, the Atlantic Salmon Recovery Plan, Volunteer River Monitoring Program (VRMP) and through many other government agencies such as the Department of Inland Fisheries and Wildlife, EPA, United States Geologic Survey.

Every two years, the DEP publishes a report and list documenting the results of the assessments, and identifying which waters are meeting their designated classifications, and which are considered impaired. The report and list are called the Integrated Water Quality Report and are generally referred to by the Section of the Clean Water Act which requires them: the 305(b) report and/or the 303(d) list, respectively. There are five general status categories available for assignment to each water:

- Category 1: Attaining all designated uses and water quality standards, and no use is threatened.
- Category 2: Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).
- Category 3: Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).
- Category 4: Impaired or threatened for one or more designated
    - 4A means a TMDL has already been completed
    - 4B means other pollution control measures will address impairment, so no TMDL is required to be completed
    - 4C means the impairment is not caused by a pollutant and so does not require development of a TMDL (Total Maximum Daily Load) report.
- Category 5: Waters impaired or threatened for one or more designated uses by a pollutant(s), and a TMDL report is required.

In Maine, the most current 303(d) list approved by the EPA is from the 2016 data. The Maine DEP has indicated they will issue a combined 2018/2020/2022 303(d) list sometime in 2022.

A TMDL document identifies the source(s) of the impairments and recommendations to correct the impairments. In particular, a TMDL document identifies how much of a pollutant a water body can receive and still meet its water quality classification. Typically, the units are identified as pounds per day, which is the basis for the term “Total Maximum Daily Load”. TMDLs typically include a Margin of Safety between 2 and 5% of the TMDL to account for uncertainties or lack of knowledge about the relationship between the pollutant loading and water quality.



Total Maximum Daily Load (TMDL) Components

In addition to the Maine 305(b) report and 303(d) list, Maine has developed a special rule, Chapter 502, which has restrictions related to Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams. This rule became effective in 1997 and has been modified several times over the years. The rule defines an Urban Impaired Stream as a stream that fails to meet its water quality standards because of effects of stormwater runoff from developed land. The rule imposes additional stormwater treatment controls on development in the watersheds of Urban Impaired Streams.

1.4.2 York Water Quality Status

This section provides a summary of the waters in the Town's Urbanized Area that receive point source discharges from the Town's MS4 and each waterbody's TMDL and impairment status. Table 1 shows the waters where the Town has MS4 discharges and their impairment status. The Table shows the number of MS4 outfalls (in parentheses) that discharge to each waterbody as of December 2020.

The following documents were reviewed developing Table 1:

- Piscataqua River Estuary TMDL (1999)
- Statewide Bacteria TMDL (September 2009 and 2013 Addendum)
- Impervious Cover TMDL (September 2012)
- Non-Point Source TMDL (2015)

- Final 2016 Maine Integrated Water Quality Report and Appendices (a.k.a. Maine 305(b) Report and 303(d) list) Note that the DEP has indicated they will not issue a 2018 303(d) report, rather they will be issuing a combined 2018/2020/2022 303(d) report.
- USEPA and Maine DEP approved TMDL lists
- Chapter 502 Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams

Figure 1 shows the locations of the fresh waters and their status according to the 2016 303(d) list (from https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=dffb3d2b85904b18978d02fc9d913b5f).

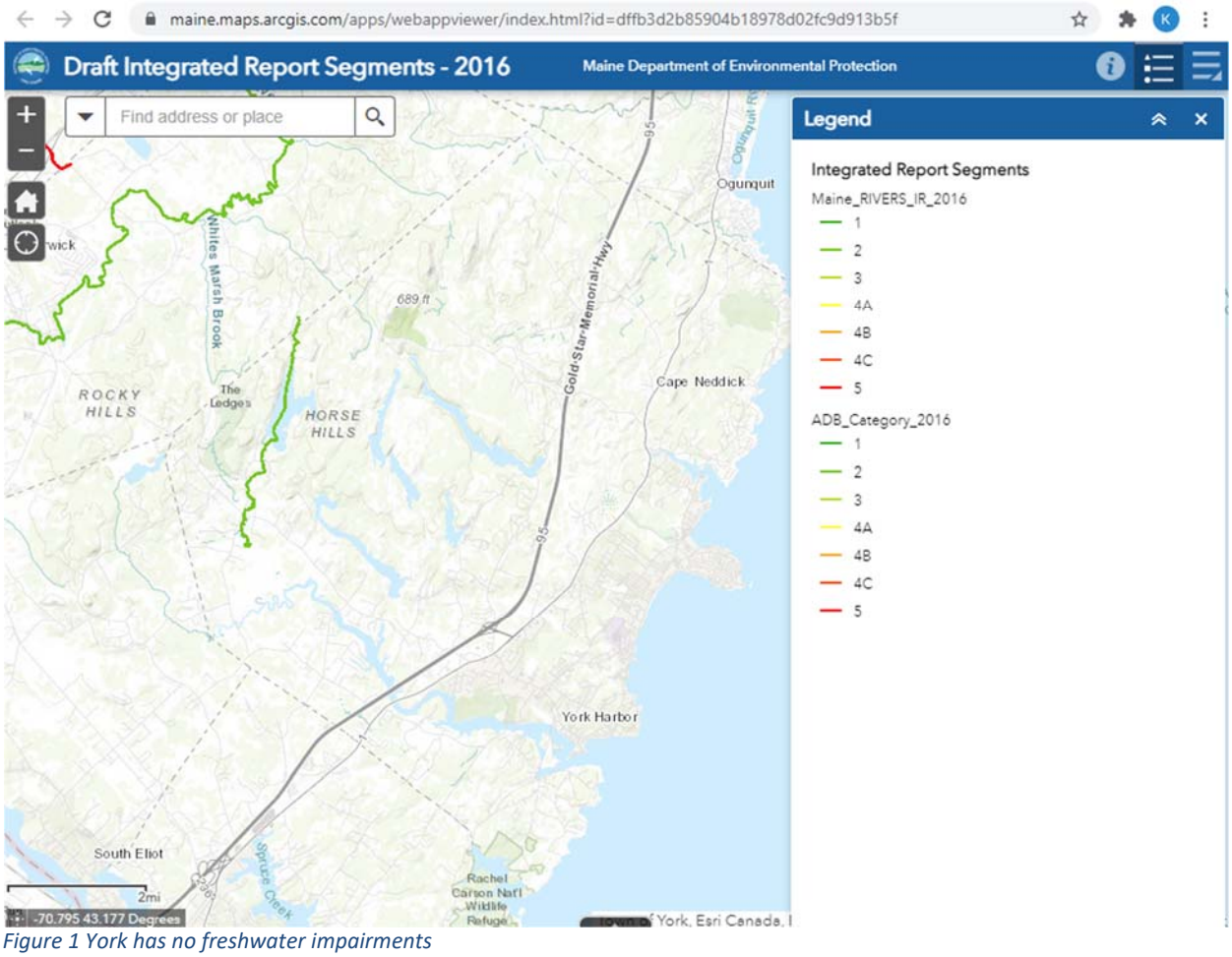


Figure 1 York has no freshwater impairments

Table 1 Status of Waterbodies Receiving MS4 Discharges – York Maine						
Water bodies with MS4 discharges (# outfalls)	**Maine DEP classification and numeric designation**	**DMR Area**	**Completed TMDLs**	**Urban Impaired Streams (Chapter 502)**	**Non-TMDL listing in 2016 303(d) list**	**Watershed Management Plan / Other Water Quality Document**
Atlantic Ocean - Brave Boat Harbor and York River Harbor Areas: Sisters Point to East Point (1 outfall)	826-2A Class SA	WB (was 3)	None	None	Cat. 5-B-1 Bacteria Only 2017-2020 Shellfishing Prohibited Area	None
York River and unnamed tributaries and wetlands (49 outfalls)	826-2 Class SB	WB (was 3)	None	None	Cat. 5-B-1 Bacteria Only 2017-2020 three segments: Conditionally Approved, Restricted and Prohibited	York River - Wild and Scenic Designation
Dolly Gordon Brook (13 outfalls)	No DEP Designation Class B	None	None	None	None	Part of York River Wild and Scenic Designation
Barrell Mill Pond (24 outfalls)	826 Class SB	WB (was 3)	None	None	Cat. 5-B-1 Bacteria Only 2017-2020 Shellfishing Conditionally Approved	Part of York River Wild and Scenic Designation
Atlantic Ocean - Long Sands Beach, Nubble Point, Short Sand Beach, Cape Neddick Harbor Areas: East Point to Bald Head Cliff (49 outfalls)	826 Class SB	WC (was 4)	None	None	Cat. 5-B-1 Bacteria Only 2017-2020 Shellfishing Prohibited Area	Cape Neddick River Watershed Management Plan
Little River (3 outfalls)	826 Class SB	WC (was 4)	None	None	None	None
Cape Neddick River (5 outfalls)	826-3 Class SB	WC (was 4)	None	None	Cat. 5-B-1 Bacteria Only 2017-2020 Shellfishing Prohibited Area	Cape Neddick River Watershed Management Plan

Figures 2a and 2b show the status of marine waters according to the Department of Marine Resources as of 3/1/2021. (from https://www.maine.gov/dmr/shellfish-sanitation-management/closures/index.html). Because DMR updated their designations and naming structure on 3/1/2021, the Figures reflect the new designations and naming structure and Table 1 shows both the new designation and the old DMR designation that was in effect when the 2022 MS4 General Permit was finalized on 10/15/2020. These areas are also listed under their old designations on the 2016 Maine DEP 303(d) list for elevated bacteria concentrations. The Maine DEP does not otherwise provide graphic representation of the locations of the marine/estuarine waters that are listed as impaired in the 2016 303(d) list.

Figure 2a – DMR Area WB – Overview

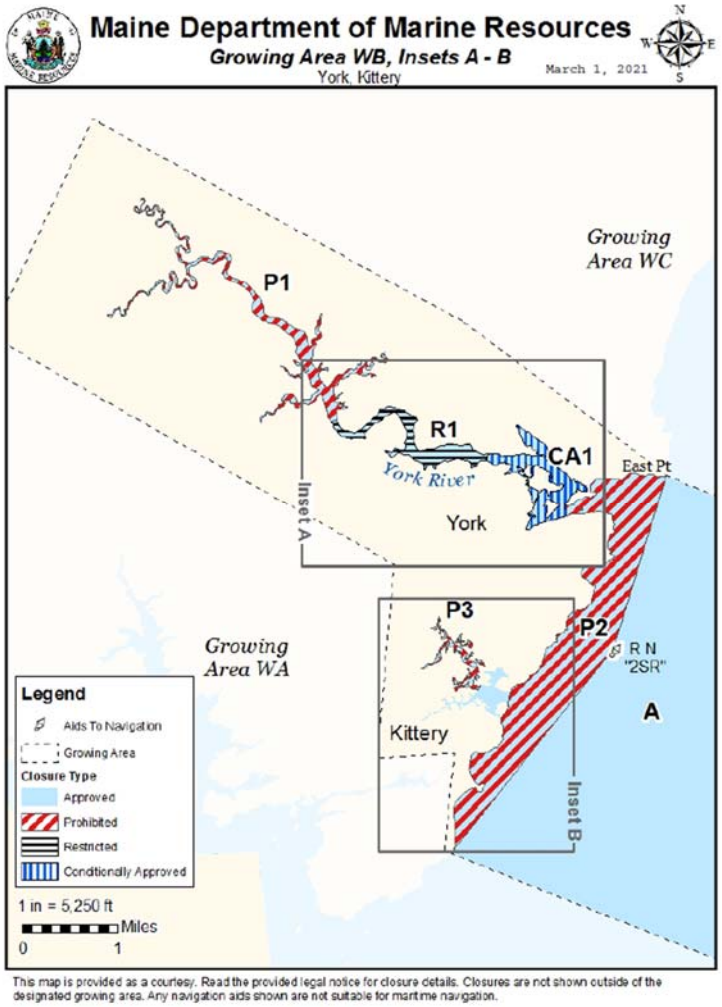


Figure 2b – DMR Area WC

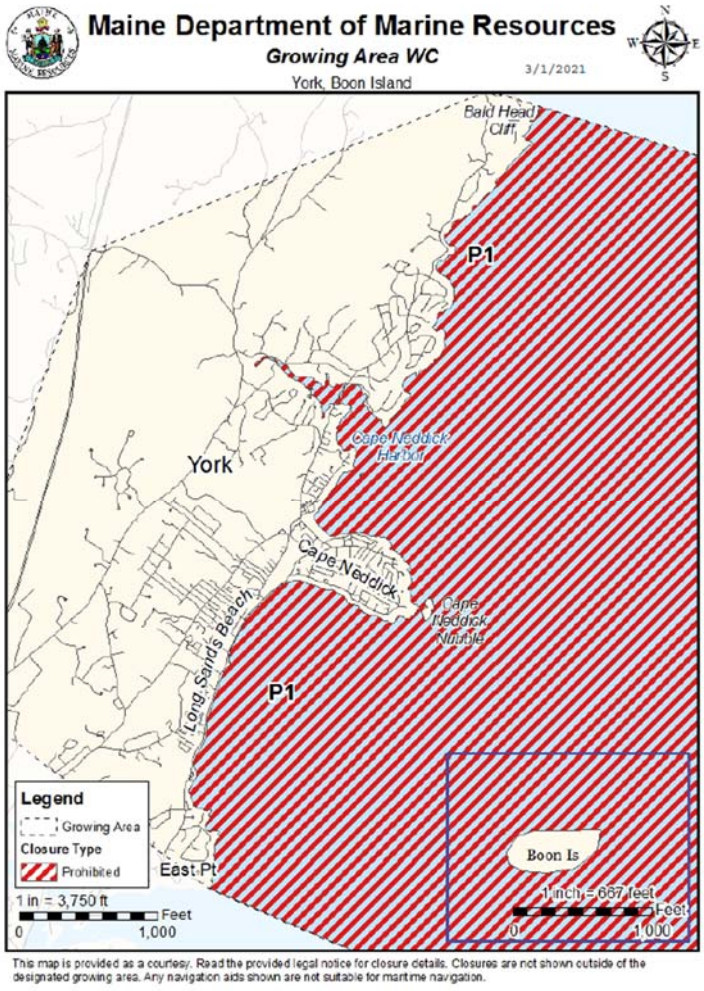


Table 1 shows the Town does not have any Urban Impaired Streams and does not discharge to any impaired water with a TMDL approved by EPA as of 10/15/2020.

Table 1 shows several of the Town's waters are listed as impaired for bacteria only due to shellfishing, but that no TMDL is applicable to these waters. These waters used to be listed in the 2009 Bacteria TMDL but were re-categorized in 2016. The recategorization is temporary until the Maine DEP can re-issue the Bacteria TMDL.

1.4.3 Impaired Waters Addressed in this SWMP

Because the Town does not discharge to any Urban Impaired Streams or waters with a TMDL approved by EPA as of 10/15/2020, no BMPs or action needs to be taken regarding these waters.

As stated in the 2022 MS4 General Permit Fact Sheet, the Town consulted with the Maine DEP Division of Environmental Assessment to understand if any action needed to be taken to address discharges to impaired waters without TMDLs through the MS4 Permit.

The only waters that fall in this category are waters that are marine/saline waters that are impaired for bacteria and were previously included in the Statewide Bacteria TMDL.

The consultation with Maine DEP revealed:

1. The DEP has not fully specified the root cause of the impairment, but suspects that stormwater is a contributing factor
2. That implementation of the IDDE elements of the MS4 General Permit (conducting outfall inspections, sampling outfalls during dry weather flow, and completing IDDE investigations to eliminate any bacterial sources), are sufficient to address the impairment until such time as the Bacteria TMDL document can be updated.

1.5 Priority Watersheds

Previous MS4 General Permits required that regulated MS4s identify a Priority Watershed and apply BMPs to that Watershed. The 2022 MS4 General Permit does not contain any specific requirements related to Priority Watersheds. However, it does require that an MS4 have a procedure in place to prioritize watersheds when addressing illicit discharges. The Town of York uses this prioritization to identify where illicit discharge inspections are conducted first. The Town may also use the prioritization for illicit discharge investigations in the event there were insufficient resources to address all potential illicit discharges simultaneously. The IDDE Plan describes in more detail how the prioritization is applied.

The Maine DEP maintains a list of waters that are vulnerable to non-point source pollution, which is then available to receive grant funding under Sections 308(b) and 319 of the Clean

Water Act as long as the funding is not used to satisfy the conditions of a Clean Water Act Permit (such as the 2022 MS4 General Permit). The list includes the MS4's "Priority Watershed".

MS4s should keep in mind that they may not use 319 grant funding to implement any BMPs required by the MS4 General Permit.

The Town's Urbanized Area is contained within the watershed called, Frontal Drainages of Southern York County (HUC 0106000311). Therefore, this is the priority watershed for the town.

The Cape Neddick River has been designated the Town's highest priority waterbody, hence its subwatershed is the highest priority for the Town (Stevens Brook Cape Neddick River (HUC Code 0106000311-02).

Watersheds, subwatersheds and drainage areas are described using a national naming and numbering system. Watersheds are described using a 10-digit Hydrologic Unit Code (HUC). Watersheds are divided into smaller divisions called subwatersheds and are numbered by retaining the 10-digit HUC from the watershed and adding two additional digits to form a resultant 12-digit HUC. National HUC data sets end with the 12-digit HUC subwatersheds. Municipalities and/or states typically subdivide the subwatersheds into smaller drainage areas, again retaining the 12-digit HUC of the parent subwatershed and adding two more digits.

This water is listed as impaired for shell fishing because of the presence of the Sewer District's Wastewater Treatment Plant outfall pipe. Cape Neddick River has received significant attention from a local-grass roots organization focused on improving its water quality.

1.6 Obtaining Coverage to Discharge

As required, a Notice of Intent (NOI) to comply with the 2022 MS4 General Permit was submitted to the Maine DEP with this SWMP. A copy of the Town's NOI is provided in Appendix B.

30-day Public Notice was provided by both the Maine DEP and the Town to allow the public to comment on the SWMP. A copy of the Public Notice provided by the Town is contained in Appendix B.

Following review of the SWMP and NOI, and receipt of any public comments, the Maine DEP issues a permittee specific DEP Order, establishing terms and conditions that are enforceable in addition to the language in the 2022 MS4 General Permit which is also enforceable.

The permittee specific DEP Order is also subject to a 30-day public comment period, but only the DEP provides this public notice. DEP provides any updated information to the Town at the end of the public comment permit. If no comments are received, DEP provides notice to the

Town that they are authorized to discharge under the 2022 MS4 General Permit and the permittee specific DEP Order.

Once the DEP issues authorization to discharge, the Town has 60 days to update the SWMP to reflect any new or changed requirements based on the DEP Order and any comments. At that time, the permittee specific DEP Order will be included in Appendix B. In addition, the permittee will include all comments received in Appendix C along with any notes on how the comments were addressed in the SWMP. The SWMP needs to be resubmitted to the DEP after revision along with a narrative indicating how the SWMP has been modified to be consistent with the 2022 MS4 General Permit and permittee specific DEP Order unless the Department indicates in writing that resubmittal is not required. The new permit conditions do not take effect until 7/1/2022.

1.7 SWMP Availability

The SWMP must be made available to the public by publishing on the Town Website. A copy must also be made available to the public at Town Hall.

If any of the following entities request a copy, one must be made immediately available to them:

a) USEPA or Maine DEP,
b) Any interconnected or adjacent MS4,
c) Any owner or operator of a water supply company where the MS4 discharges to a water supply watershed, or
d) Members of the public.

1.8 SWMP Modifications during the Permit Cycle

During the permit term (2022 to 2027), the SWMP must be kept current. As required by the 2022 MS4 General Permit, the Town will amend the SWMP if the Maine DEP or the Town determine that:

a) The actions required by the BMPs fail to control pollutants to the meet the terms and conditions of the 2022 MS4 General Permit and the permittee specific DEP Order;
b) The BMPs do not prevent the potential for a significant contribution of pollutants to waters of the State other than groundwater; or
c) New information results in a shift in the SWMP's priorities.

Even though this SWMP is not an enforceable document, if any changes are made, the SWMP will be made available for 30-day public comment by posting the changes on the Town's Website.

If the changes being made are not explicitly required by the 2022 MS4 General Permit or the

permittee specific DEP Order, the opportunity for public comment will be made on the Town's website annually and the DEP will be notified of the changes in the annual report following the permit year the changes were made.

If the changes being made are explicitly required by the 2022 MS4 General Permit or the permittee specific DEP order one of the following processes will be followed depending on who identified the need for the change:

- If the changes are initiated by the Town, the Maine DEP will be notified prior to changing any elements by filing a permit application with the DEP that includes a justification to formally modify the requirement;
- If the changes are initiated by the Maine DEP, it will notify the Town, and the Town must respond in writing within 30 days of the notice explaining how it will modify the SWMP. The Town must then modify the SWMP within 90 calendar days of the Town's written response, or within 120 calendar days of the DEP notice (whichever is less). Any such modification must be submitted to the DEP for final review.

1.9 Annual Compliance Report and Record Keeping

By September 15 of each year, the Town will electronically submit an Annual Compliance Report for the Maine DEP's review using a standardized form provided by the Maine DEP. The Annual Compliance Report must be sent to:

Rhonda.poirier@maine.gov
Municipal/Industrial Stormwater Coordinator
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

The Annual Compliance Report must include the following:

a. The status of compliance with the terms and conditions of the 2022 MS4 General Permit and the Town's permittee specific DEP Order, based on the implementation of the Town's Plan for each permit year, an assessment of the effectiveness of the components of its stormwater management program, an assessment of the appropriateness of identified BMPs, progress towards achieving identified measurable goals for each of the MCMs and progress toward achieving the goal of reducing the discharge of pollutants to the MEP
b. A summary of information collected and analyzed, including monitoring data, if any, during the reporting period.
c. A summary of the stormwater activities the Town intends to undertake pursuant to its Plan to comply with the terms and conditions of the 2022 MS4 General Permit and the Town's permittee specific DEP Order during the next reporting cycle.
d. A change in any identified BMPs or measurable goals that apply to the Plan.

e. A description of the activities, progress, and accomplishments for each of the MCMs #1 through #6 including such items as the status of education and outreach efforts, public involvement activities, stormwater mapping efforts, the number of visual dry weather inspections performed, the number of inaccessible and new outfalls, dry weather flow sampling events and laboratory results, detected illicit discharges, detected illicit connections, illicit discharges that were eliminated, construction site inspections, number and nature of enforcement actions, post construction BMP status and inspections, the number of functioning post construction BMPs, the number of post construction sites requiring maintenance or remedial action, the status of the permittee's good housekeeping/pollution prevention program including the percentage of catch basins cleaned, those catch basins cleaned multiple times and the number of catch basins that could not be evaluated for structural condition in a safe manner. Where applicable, the MS4 must quantify steps/measures/activities taken to comply with the 2022 MS4 General Permit and its Plan including reporting on the types of trainings presented, the number of municipal and contract staff that received training, the length of the training and training content delivered as well as any revisions to the SWPPP procedures and/or changes in municipal operations.

The Maine DEP will review the annual reports and provide comments to the MS4s. Changes to the report based on the Maine DEP's review comment(s) must be submitted to the Department within 60 days of the receipt of the comment(s).

The regulated MS4s must keep records required by the 2022 MS4 General Permit and permittee specific DEP Order for at least three (3) years following its expiration or longer if requested by the Maine DEP Commissioner. The regulated MS4s must make records, including this Plan, available to the public at reasonable times during regular business hours.

2 MINIMUM CONTROL MEASURES

2.1 MCM 1 Education/Outreach Program

The 2022 MS4 General Permit requires the Towns develop two Education/Outreach Campaigns to address stormwater issues of significance:

1. An Outreach to Raise Awareness Campaign targeted at two audiences: one target audience must be the general public, and the second audience may be selected from: municipal, commercial, development/construction or institutions. A minimum of three tools must be directed at each audience each year.
2. An Outreach to Change Behavior Campaign promoting one behavior change targeted at two audiences. A minimum of three (3) outreach tools must be directed at each audience each year to promote and reinforce desirable behaviors (designed to reduce stormwater pollution).

In 2018, ISWG executed a statewide survey around public awareness of stormwater issues and behaviors that impact stormwater. The survey results were summarized in the SMSWG Permit Year 5 (2017-2018) annual reports. In addition, the SMSWG communities discussed the results of the statewide survey, reviewed water quality status related to stormwater issues, considered their first-hand knowledge of their communities, and the needs for public education around stormwater at four of their regional meetings (9/26/2018, 5/29/2019, 7/31/2019, and 9/30/2020) before deciding what issues of significance to address, and what tools and messages might be effective. Each of the BMPs provides a brief introductory section describing the rationale for the selection of the BMP based on the SMSWG communities' understanding of their areas.

The Towns will cooperate on a regional and statewide scale to complete the requirements of the Education/ Outreach Program. The Towns will fulfill the requirements of this MCM by implementing the following BMPs.

2.1.1 BMP 1.1 – Raise Awareness– General Public.

Responsible Party – Stormwater Manager (with implementation assistance from a cooperative ISWG/SMSWG effort)

The 2022 MS4 General Permit requires the permittee to raise awareness of the public as well as one of the following groups: municipal, commercial, development/construction, or institutions. Measurable Goal 1.1a describes the actions the Town will take to raise awareness of the public, and Measurable Goal 1.1b describes the action the Town will take to raise awareness of municipal staff and board members. Rationale for the selection of the target audiences is provided here also.

Background for Measurable Goal 1.1a Public Audience: The Think Blue Maine campaign began in 2003 as a statewide effort to raise awareness of common stormwater pollutants and ways to prevent those pollutants. The Think Blue Maine campaign has been historically successful in increasing awareness of stormwater issues. The ISWG, AVSWG, and SMSWG coordinate their Think Blue Maine messaging and education efforts to provide consistent messaging in Southern Maine. In addition, the Massachusetts and New Hampshire small MS4s are using similar Think Blue campaigns, so there is some regionally consistent messaging in circulation.

In 2018, the ISWG executed a statewide survey around public awareness of stormwater issues and behaviors that impact stormwater. Only 15 of the survey respondents in the SMSWG region were ages 25 to 34, but all of them stated it was "very important to have clean water in the lakes and streams in [their] community", and 12 of them believe that stormwater runoff has a major impact or somewhat impacts water quality. As was true of the ISWG demographic in this age group, 47% of SMSWG respondents ages 25 to 34 were able to correctly describe what happens to stormwater at their residence. Because this age group has not been targeted before and has potential to impact stormwater for many years in the future, the ISWG, AVSWG, and SMSWG communities will cooperatively use the Think Blue Maine campaign to raise their awareness of stormwater issues. This will increase their likelihood to implement beneficial behavior change in the future.

Measurable Goal 1.1a – The Town will raise 15% of the target audience's awareness of what happens to stormwater at their residence or place of work. According to the 2019 US Census Bureau, the SMSWG region's population for ages 25 to 34 is approximately 4,100 people, 15% of the target audience is approximately 600 people.

Target Audience: People 25 to 34 in the SMSWG region

Overarching Message: "Water that lands on our roads, roofs, and other hard surfaces picks up pollutants and carries them to our local waterbodies without being treated." This message will be presented with variations based on target audience interests and outreach tools used.

Outreach Tools: A minimum of three outreach tools will be selected from Appendix D each year. Each tool will be assessed and customized based on the target audience's receptiveness to the method. Any tool used in a given year will be tailored to the message of the relevant target audience subset based on common characteristics and/or demographics.

Evaluation: Effectiveness will be evaluated annually by tracking process indicators[1] for each tool implemented that year and by tracking impact indicators[2] where available (see Appendix D).

Implementation schedule: A minimum of three of the tools from Appendix D will be implemented each year for the duration of the permit.

[1] Indicators related to the execution of the outreach program.

[2] Indicators related to the achievement of the goals or objectives of the program.

2.1.2 BMP 1.2 – Raise Awareness – Municipal Staff/Boards

Responsible Party – Stormwater Manager

Measurable Goal 1.2a – During the 2013-2022 MS4 Permit Cycle, the Town implemented a permit awareness plan targeting municipal boards and staff. The Town identified in its final assessment (submitted to Maine DEP in PY5) that because of Board and staff turnover, the awareness program is very important. The final assessment for the prior permit cycle is being used as the baseline assessment for this permit cycle.

Target Audience: The Town will continue to raise awareness of the MS4 Program targeting one Board per year (either the Planning Board or the Select Board/Town Council) and any new Town Manager, Planner, Public Works Director or Code Enforcement Officer.
Message: The Staff and/or Board's Role is important in implementing the MS4 Program and protecting waters from stormwater pollution.

The following tools will be used each year to implement this BMP.

Tool 1 Fact Sheet: The Responsible Party for this MCM will review a Town-specific MS4 Fact Sheet and update it if needed. The Fact Sheet will be maintained on Town's stormwater web page and used in Tools 2 and/or 3 if deemed appropriate by the Responsible Party.
Tool 2 Meeting or Materials: The Responsible Party for this MCM will either attend or provide written materials to a Planning Board or Town Council/Select Board for their consideration at a meeting. Topics that may be covered include: (a) the MS4 Program in general, or (b) a specific element of the MS4 program pertinent to the Board, or (c) an invitation to a public participation event (BMP 2.2).
Tool 3 New Staff: Whenever a new Town Manager, Planner, Public Works Director or Code Enforcement Officer is hired the Responsible Party for this MCM will meet with or provide written materials to the new staff member to review their responsibilities related to the 2022 MS4 General Permit.

Effectiveness Benchmark (e.g., the target for awareness): Effectiveness will be evaluated annually by tracking the process indicators for each tool that is implemented that year, and by tracking impact indicators where available. The Measurable Goal will be considered effective if the following occur:

- Tool 1: The Fact sheet is reviewed and updated if needed
- Tool 2: If the engagement by the board members during a presentation (or discussion of written materials) indicates they understand their role is important in implementing the MS4 Program, or by the number of board members that attend the BMP 2.2 Public Participation event (if invited)
- Tool 3: If any new staff are hired: the meeting occurs, or the written materials are provided, and the new staff indicate they understand their MS4 responsibilities.

2.1.3 BMP 1.3 – Behavior Change Campaign – Proper disposal of commonly littered items

Responsible Party – Stormwater Manager

The SMSWG communities selected proper disposal of litter as their primary behavior change goal with a focus on proper disposal of cigarette butts and pet waste for the following reasons:

1. **Litter is a nationally recognized issue related to stormwater** – litter carries pollutants with it and many forms of litter are harmful to aquatic life. Cigarette butts contain carcinogenic substances, and non-biodegradable elements that can be ingested by aquatic life. Pet waste carries high concentrations of nutrients including bacteria and nitrogen. And purchased food wrappers and containers are typically plastic or paper which do not biodegrade and contains some excess or residual food item which contains nutrients.

2. **Supported by Maine Statewide Stormwater Survey** - The Maine Statewide Stormwater Survey conducted in Permit Year 5 of the previous cycle identified that 80% of survey respondents are aware that pet waste trash is a common stormwater pollutant, and 92% are aware that trash is a common stormwater pollutant, and they believe that picking these items up and putting them in the trash can reduce water pollution. Their awareness of these issues makes behavior changes more likely to be implemented (people must be aware of a problem before they are likely to take steps to help correct the problem).

3. **National Study Data for cigarette butts** - Keep America Beautiful prepared a detailed study called Littering in America (2009) with a companion document, National Visible Litter Survey and Cost Study (2009). This was the first national study of littering since 1969, and while overall littering had decreased significantly, there is still a lot of littering going on. The SMSWG communities reviewed the studies to identify sources of pollutants and target audiences that could benefit from public education activities. In particular, the following findings lead the SMSWG communities to identify the target audiences and messaging shown in Measurable Goals 1.3a and 1.3b:
    - Cigarette butts are the number one littered item on roadways and in storm drains and the number one or two littered item in non-roadway areas (such as recreational areas, retail areas, construction sites, and transition points like building or park entrances).
    - 81% of littering behavior occurs with notable intent (primarily cigarette butts and confectionary/candy wrappers), and an individual's awareness attitudes, and feelings of personal responsibility are most of the driving factors that lead people to litter (85%) and these items should be addressed through targeted messaging:
        - Most intentional litterers believe someone else will pick it up or believe someone else should pick it up as part of their job description, and do not understand the cost of their littering behavior.
        - Most intentional litterers also believe that cigarette buts are "natural" or "organic" and will decompose naturally. But the filters contain cellulose acetate, a form of plastic that does not biodegrade and can persist in the environment, adversely

affecting marine and freshwater creatures when it reaches waterways.

- Even though the individual awareness and attitudes are 85% of the driving factors for littering, the following contextual issues also contribute to littering, and so any good reduction program should address these also:
    - the availability of receptacles is an important factor in littering behavior (where trash receptacles are more than 10 feet away from a transition point such as a building entrance, more littering is conducted).
    - The presence of existing litter makes individuals more likely to litter.

- Age is a significant factor in intentional littering (individuals age 30 and below are more likely to litter than older people).
- The number of adult smokers in Maine according to the CDC Map of Cigarette Use Among Adults | STATE System | CDC is 15.4 to 18.6%. The CDC reports that 7-9% of high school students smoke in Maine.
- Recommendations from the study included making proper disposable convenient and accessible, ensuring consistent and ongoing clean-up efforts, and using messaging that highlights social disapproval for littering and a preference for clean, litter-free communities, focusing on individual responsibility.

4. **National Study on Pet Waste Issues** - The Journal of Applied Psychology published a study (July 2006 issue, study by Paul Webley and Claire Siviter) where dog owners were observed along 8 popular dog walking paths in Lancashire, U.K. This study confirmed that although 60% of dog owners pick up after their dog, the 40% of dog owners who do not pick up after their dog do so because they believe that the feces are natural and biodegradable, and they do not understand the health and environmental impacts of leaving the feces on the ground. The study identified that the dog owners who did not pick up after themselves were more likely to believe that laws and regulations requiring them to pick up the waste were not legitimate. The study concluded that positive messaging that most dog owners pick up after their dogs would likely be effective in changing the behavior of the minority. Additionally, more current studies confirm that the belief that the feces are natural, and biodegradable is a significant contributor to individuals' justifications for not picking it up. Other barriers include belief that someone else should pick it up (it's their job, that is what I pay taxes for), or it's like fertilizer (good for the ground), or there is no access to bags or disposal sites.

5. **Pet Waste and Trash are local issues, and existing removal efforts need support** - Local efforts are in place to remove litter from beaches, ditches, roadsides and parks in the communities. These efforts occur annually and provide a good anecdotal and baseline information about the cigarette butt and pet waste problems in each community, but more work needs to be done to educate individuals in these communities. The following is a brief summary of the local issues identified:

    - The Kittery, York, Eliot and South Berwick Conservations Commissions were contacted in 2020 and confirmed that littering was an issue in each community, though not

specifically, cigarette butts and pet waste, they identified local fast-food waste (South Berwick) and roadside beverage containers (Eliot).

- Kittery, York, Eliot and South Berwick Conservations Commissions organize local clean up events: roadside cleanups (South Berwick) and Beach and park areas (Eliot, Kittery and York). (Berwick does not have a conservation commission).
- The Conservation Commissions expressed an interest in partnering on public education and clean-up efforts.
- The Litterati Ap was used as a pilot to assess its usefulness and create some baseline data regarding cigarette butt issues. Though not a statistically significant data set, the following supports the national studies that show that cigarette butt littering is widespread. In addition, the Litterati Ap was easy to use and has an administrator's interface that provides summary data which will facilitate documentation of litter found and removed from the environment:
    - Berwick Town Hall: 59 pieces of litter were collected in a walk around Sullivan Square – 20 of the pieces collected were cigarette butts.
    - Two areas of Eliot were walked (~ 200-foot segments of two rural roads) and the areas at stop signs were identified with multiple cigarette butts.
    - For Kittery, the busy intersection of State Street and Walker Street was walked and 36 of 44 items observed were cigarette butts or packages.
    - In York, a walk along a 100-foot segment of York Street in front of Town hall identified 7 cigarette butts of 13 litter items.

Overarching Messages: Cigarette butts do not decompose and are harmful to the environment and aquatic organisms. Cigarette butts should be disposed of as regular waste.

The specific messages used for each tool will address various barriers to understanding these concepts depending on any specific subsegment of the audience being targeted.

Three of the following tools will be used each year to implement this BMP in each community. More than three tools are included in this Plan to allow for flexibility in implementation from year to year.

Optional Tool 1 Stencil 40 storm drains in beach, park, neighborhood, and/or downtown areas.
Optional Tool 2 The SMSWG regional collaborative will create and issue four seasonal social media or website posts related to cigarette litter.
Optional Tool 3 The Town will install and ensure maintenance is conducted on at least two Sidewalk Buttlers, or similar products with messaging at targeted areas, and will create and issue informational flyers, posters or stickers. Town may request a retail facility conducts maintenance.
Optional Tool 4 Offer 40 free automobile cigarette cup holders at Town Hall if recipients provide an email address for info on follow up to their use/effectiveness (because cars do not have ash trays).
Optional Tool 5 Create and use 4 truck magnets or bumper stickers with message for

public works vehicles or other town vehicles or shrink wrap one town vehicle with message.

Optional Tool 6 Offer one local or regional workshop and training for use of Litterati Ap to the Conservation Commission or other local interested group. The workshop may be conducted in cooperation with other SMSWG communities as long as two workshops are offered to the region each year this tool is used.

Effectiveness Benchmarks Each year the following process indicators will be documented for whichever corresponding tool was used (note that not all tools will be used each year):

1. The number of basins stenciled,
2. The number of social media posts made, how many people they reached, and how many engagements there were on each post,
3. Number of Sidewalk Buttlers placed and maintained, and total quantity of cigarette butts collected in Sidewalk Buttlers that are maintained by municipalities, or information on use from retailers on use (which may be qualitative),
4. Number of cigarette cup holders distributed
5. Number of magnets or bumper stickers applied and used.
6. Number of workshops held and number of attendees.

The Tools will be deemed to be effective if the total quantity of cigarette butts collected each year increases in the Sidewalk Buttlers and/or decreases in the roadside and beach cleanups.

In addition to the process indicators, the Town will use the location and quantity of cigarette butts identified during the following activities to guide messaging, tool use and to assess impact:

- during catch basin cleaning
- during outfall inspections
- from the Litterati Ap use
- from MCM2 cleanup data

Measurable Goal 1.3b – The Town will work toward changing the behavior of pet owners who walk their dogs in public spaces using the messaging and tools below.

Overarching Message: Collect your pet waste and dispose of it properly (solid waste). Pet waste does not decompose quickly, it is not a natural fertilizer, and can adversely impact water quality.

Three of the following tools will be used each year to implement this BMP. More than three tools are included in this Plan to allow for flexibility in implementation.

Optional Tool 1 Stencil 20 storm drains in beach, park, neighborhood, and/or downtown areas.

Optional Tool 2 The SMSWG regional collaborative will create and issue four seasonal social media or website posts related to pet waste

Optional Tool 3 Install/Maintain signs at a minimum of one area identified as having pet

waste issues.

Optional Tool 4 Include a handout/postcard provided when dog license is issued, or at shelters or doggie day cares or vets… (reminders)

Optional Tool 5 Create and use 3 truck magnets or bumper stickers with message for public works vehicles or other town vehicles or shrink wrap one town vehicle with message.

Optional Tool 6: Offer one local or regional workshop and training for use of Litterati Ap to the Conservation Commission or other local interested group. The workshop may be conducted in cooperation with other SMSWG communities as long as two workshops are offered to the region each year this tool is used.

Optional Tool 7 Install/Maintain pet waste bag and disposal posts at two high traffic locations for dog walkers.

Effectiveness Benchmarks: Each year the following process indicators will be documented for whichever corresponding tool was used (note that not all tools will be used each year):

1. The number of basins stenciled,
2. The number of social media posts made, how many people they reached, and how many engagements there were on each post.
3. Number of signs applied
4. Number of handouts provided with pet licenses
5. Number of magnets or bumper stickers applied and used.
6. Number of workshops provided and number of attendees at each workshop.
7. Number of pet waste bag and disposal posts installed and maintained.

In addition to the process indicators, the Town will use the location and quantity of pet waste and/or pet waste baggies identified during the following activities to guide messaging, and to assess impact:

- during catch basin cleaning
- during outfall inspections
- from the Litterati Ap use
- from MCM2 cleanup data

2.1.4 BMP 1.4 – Overall Effectiveness Evaluation

Measurable Goal 1.4a – In addition to the annual effectiveness evaluations, in Permit Year 5 of the 2022 MS4 General Permit, the Town will work with the other SMSWG communities to conduct an evaluation of the overall effectiveness of the Awareness and Behavior Change BMPs (BMPs 1.1 through 1.3) to assess progress toward each benchmark listed. The evaluation will be a review of trends in the annually reported benchmark values for the Behavior Change and Awareness BMPs as well as documentation overall of changes made each year. The evaluation will identify recommendations for future awareness and behavior change target audiences, messages, tools and benchmarks.

2.2 MCM 2 Public Involvement and Participation

The SMSWG Towns will cooperate on Public Involvement and Participation activities on a regional basis, as described in this section of the plan.

2.2.1 BMP 2.1 - Public Notice Requirement

Responsible Party: Stormwater Manager

Measurable Goal 2.1a – The Town will follow state and local Public Notice requirements for its Stormwater Management Plan and Notice of Intent (NOI) to comply with the Permit. Copies of the NOI and SWMP will be made available on the Towns' web site. If changes are made to the SWMP, the website posting will include a notice that comments can be provided to the Responsible Party to this BMP.

2.2.2 BMP 2.2 - Host Public Events

Responsible Party: Stormwater Manager

Measurable Goal 2.2a – The Town will either individually or regionally host or participate in an annual roadside, stream, park or beach clean up to emphasize the importance of the behavior change BMPs 1.3 (Proper Cigarette Butt Disposal) and 1.4 (Proper Pet Waste Disposal). The event will be advertised:

- On the Town's website
- On the SMSWG Facebook page
- In a local daily or weekly newspaper
- One other method to be identified by Town Responsible Party which replaces one of the three identified above

During the cleanup, a sampling of waste will be conducted using either the Hydro International Trash Study Methodology (modified to include the counting of cigarette butts collected), or the Keep America Beautiful methodology, or the Litterati Ap to document the quantity of material collected.

2.3 MCM 3 Illicit Discharge Detection and Elimination

The Town will continue to implement its Illicit Discharge Detection and Elimination (IDDE) program, which includes:

- A Watershed-based map of the stormwater infrastructure,
- A written IDDE Plan which describes:
  - Inspections of the infrastructure during dry weather (and monitoring of outfalls that flow during dry weather)
  - Investigations of potential illicit discharges,
  - Enforcement of the Non-Stormwater Discharge Ordinance
  - A Quality Assurance Project Plan
- Development of a list of outfalls that have the potential to cause illicit discharges during wet weather.

The following BMPs will be implemented to meet this Minimum Control Measure.

2.3.1 BMP 3.1 – Continue to Implement the Non-Stormwater Discharge Ordinance

Responsible Party: Stormwater Manager

Measurable Goal 3.1a – The Town implemented a Non-Stormwater Discharge Ordinance on 11/4/2014. The Ordinance is a stand-alone ordinance. The Town's Code Enforcement Officers enforce this ordinance primarily under the direction of the Stormwater Manager. This ordinance provides the Code Enforcement Officers with the authority to issue letters of warning, and/or notices of violation, but as with all other Town Ordinances and regulations, fines may only be issued with the approval of the Board of Selectmen. The Town will continue to enforce this ordinance throughout the permit cycle.

Measurable Goal 3.1b – The Town will document the results of enforcement actions taken for illicit discharges on an excel spreadsheet.

2.3.2 BMP 3.2 – Maintain the Written IDDE Plan

Responsible Party – Stormwater Manager

Measurable Goal 3.2a - The Town prepared a written IDDE Plan in 2013 which has been updated to contain the elements required in the 2022 MS4 General Permit (Part IV.C.3.b.i through vi) except that the wet weather assessment element (Part IV.C.3.f) will be incorporated by 6/30/2027. The updated IDDE Plan is contained in Appendix E of this SWMP. The plan will be reviewed annually and updated if needed to reflect any changes to the program.

Measurable Goal 3.2b - The Town will conduct a wet weather assessment in accordance with the

2022 MS4 General Permit Part IV.C.3.f and will incorporate the wet weather assessment into their IDDE Plan by the end of Permit Year 5 (6/30/2027).

2.3.3 BMP 3.3 - Maintain Storm Sewer System Infrastructure Map

Responsible Party - Public Works Director

Measurable Goal 3.3a – The Town created a watershed-based map of the MS4 infrastructure during the previous permit cycle (2013-2022). The map shows the locations of stormwater catch basins, drain manholes, connecting surface and subsurface infrastructure showing the direction of pipe flow and the locations of stormwater outfalls. The infrastructure is documented in a Geographic Information System (GIS), which contains unique identifiers for outfalls and catch basins, as well as outfall material, size and receiving water. The map is updated annually as follows:

- The GIS geodatabase is updated to reflect changes to infrastructure based on inspections by Public Work Staff by June 30 each year,
- The GIS geodatabase is updated when as-built drawings become available for municipal infrastructure, and
- Paper maps are printed only on an as-needed basis.

2.3.4 BMP 3.4 – Conduct Infrastructure Inspections and Monitor Flowing Outfalls

Responsible Party - Public Works Director

Measurable Goal 3.4a – The Town will conduct infrastructure inspections for pollutants using the following frequency:

- One dry weather inspection will be conducted on each outfall at least once per permit cycle as required by the 2022 MS4 General Permit, but the Town will continue to attempt to inspect each outfall annually if time and municipal budget allows.
- Dry weather ditch inspections will be conducted whenever ditch maintenance work is anticipated
- Catch basins will be inspected for evidence of pollutants during their required sediment inspections (see BMP 6.4 for details).

The Town's IDDE Plan (contained in Appendix E) describes the information collected electronically during infrastructure inspections. The Town documents the inspections electronically in the GIS.

Measurable Goal 3.4b – If an outfall is observed to be flowing during a dry weather inspection, the flow will be sampled and analyzed once per permit term using the methods described in the IDDE Plan unless it is exempt from dry weather investigations (as described in Part IV.C.3.e.vi of the 2022 MS4 General Permit). Outfalls sampled during dry weather will be handled as follows:

1. Outfalls where sampling and analysis reveals the potential for an illicit discharge: The

Town will investigate the catchment area associated with the outfall for potential illicit discharges as described under Measurable Goal 3.5a.

2. Outfalls where sampling and analysis does not reveal the potential for an illicit discharge: The Town will document the dry weather flow as either uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

The Stormwater Manager will summarize either the monitoring results or the exempt status on the excel spreadsheet used for Measurable Goal 3.5a or in a GIS geodatabase. If the monitoring reveals the outfall has a potential illicit discharge, as described in the IDDE Plan, the outfall will be investigated as required under Measurable goal 3.5a.

2.3.5 BMP 3.5 – Conduct Investigations on suspect illicit discharges and flowing outfalls

Responsible Party – Stormwater Manager

Measurable Goal 3.5a – Whenever the Stormwater Manager becomes aware of a potential illicit discharge, they will investigate to identify the source using methods described in the written IDDE Plan (Appendix E). The Stormwater Manager will track the status and outcome of the investigations using an excel spreadsheet or the GIS database.

2.3.6 BMP 3.6 – Significant Contributors of Pollutants

Responsible Party - Public Works Director

Measurable Goal 3.6a - During the 2013-2022 Permit Cycle the Maine DEP identified that hydrant flushing was a potential contributor of pollutants to MS4s. The DEP published an issue profile providing water districts and departments guidance on how to meet ambient water quality standards for chlorine during hydrant flushing. The document was specifically designed for discharges to MS4s. In addition, the Maine Rural Water Association and Maine Water Utilities Association prepared a guidance document and training to show departments and districts how to meet the requirements of the issue profile.

The Town previously made annual requests to the York Water District to provide an annual report describing their hydrant flushing dechlorination processes, and the Town will continue to request that they provide the reports each year.

Measurable Goal 3.6b – If any of the following allowed non-stormwater discharges (in addition to hydrant flushing) are identified as significant contributors of pollutants to the MS4, the Town will work with the responsible discharges to control these sources, so they are no longer significant contributors of pollutants.

- landscape irrigation

- diverted stream flows
- rising ground waters
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- uncontaminated pumped ground water
- uncontaminated flows from foundation drains
- air conditioning and compressor condensate
- irrigation water
- flows from uncontaminated springs
- uncontaminated water from crawl space pumps
- uncontaminated flows from footing drains
- lawn watering runoff
- flows from riparian habitats and wetlands
- residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used), and
- firefighting activity runoff (hydrant flushing is addressed in MG 3.6a)
- water line flushing and discharges from potable water sources
- individual residential car washing
- dechlorinated swimming pool discharges

2.4 MCM 4 Construction Site Stormwater Runoff Control

The Town will update, implement and enforce its Construction Runoff Control Program for construction activities that disturb greater than or equal to one acre of land including projects less than one acre that are part of a larger common plan of development or sale as required by the 2022 MS4 General Permit through implementation of BMPs as described in this section. Because the Town has regulatory mechanisms that already meet most of the requirements of this MCM, each BMP provides a short background section describing the related ordinances and/or regulations.

The Town of York Ordinances and Regulations are available at: Ordinances | York, ME (yorkmaine.org)

2.4.1 BMP 4.1 – Update Requirements for Erosion Sediment Control

Responsible Party - Planner and Stormwater Manager

Background: The Town's Site Plan and Subdivision Regulations (adopted 1/12/2012), specify that any application contain a Soil Erosion and Sedimentation Control Plan. Sites which trigger the Site Plan and Subdivision Regulations include all non-residential construction which has greater than 5,000 square feet of floor space, development of 3 or more residential house lots, or units for lease rent or sale (regardless of size). These thresholds are more restrictive than this MCM threshold for sites that disturb one or more acres of land including projects less than one-acre part of a common plan of development or sale. The Site Plan and Subdivision Regulations specify standards directly in Section 9.10 and Appendix A of the Regulations.

The Town's Zoning Ordinance also contains several additional requirements related to sediment and erosion control including the following:

- Article 6 Supplemental Use Requirements has varying requirements to control sediment depending on use and location such as:
    - Non-Residential Performance Standards Section 6.1.7 Some specific standards are embedded in text, such as "the duration of exposure of the disturbed area shall be kept to a practical minimum"
    - Non-Residential and Multifamily uses in Route One 1-6 Zoning Districts: Section 6.3.8 is almost the same as Section 6.1.7.
    - 6.5 Performance Standard to Control Erosion contains a general prohibition of erosion.
- 7.2.2.5 Campgrounds must control sediment and erosion in accordance with Environmental Quality Handbook, Erosion and Sediment Control (Maine Soil and Water Conservation Districts – date unknown)
- 8.3.2 Land Use Standards contains some general standards embedded in text for various uses.

Measurable Goal 4.1a – The Town will create a redline strikeout update of the Site Plan and Subdivision Regulations by 7/1/2023 to reference that the Soil Erosion and Sedimentation Control Plan meet a set of standards consistent with the applicable sections of Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendices A Erosion and Sediment Control, B Inspections and Maintenance, and C Housekeeping). In addition, the standards will include a requirement to control waste such as discarded building materials, concrete truck washouts, chemicals, litter and sanitary waste at the construction site that may cause adverse impacts to water quality if passed through the storm drain system.

The Town will also create redline strikeout updates to the relevant sections of the Zoning Ordinance. The redline strikeout updates will be offered to the York Voters via the November 2023 Warrant using procedures required by the Town Charter.

Measurable Goal 4.1b – If needed to simplify the redline strikeout documents, the Town will develop either on its own, or regionally, a set of standards consistent with the construction site requirements contained in Attachment C to the 2022 MS4 General Permit, (which are the same as the Maine DEP Stormwater Rule Chapter 500 Appendices A Erosion and Sediment Control, B Inspections and Maintenance, and C Housekeeping).

2.4.2 BMP 4.2 – Site Plan Review Procedures

Responsible Party - Planner and Stormwater Manager

Measurable Goal 4.2a – The Town's Site Plan and Subdivision Regulations already contain the required elements listed in the 2022 MS4 General Permit (consideration of potential water quality impacts, erosion control, waste storage, the ability for the public to comment at publicly noticed meetings and procedures to consider information submitted by the public). The Town will continue to implement these procedures.

2.4.3 BMP 4.3 – Procedures for notifying construction site developers and operators

Responsible Party - Planner and Code Enforcement Officers

Measurable Goal 4.3a – The Town will continue notifying developers and contractors of requirements to obtain coverage under the MCGP and Chapter 500 for sites that disturb one or more acres of land using the following methods:

- Providing notices in the Planning Department and Code Enforcement Department documents
- Requiring check box on building permit for sites that disturb one or more acres of land, and
- In general discussions with applicants.

2.4.4 BMP 4.4 –Conduct and Document Construction Site Inspections

Responsible Party – Stormwater Manager

Measurable Goal 4.4a – The Town will continue implementing its procedure for construction site inspections which will be formalized in a written document by 7/1/2022. The written procedure will:

- Identify that a preconstruction meeting will be held, and that discussion of inspections for sediment and erosion control will be conducted during construction by either a third-party contractor or a Town Code Enforcement Officer.
- Identify that the inspector will review any inspection deficiencies with the contractor during or at conclusion of the inspection to allow for BMP repairs to be done no later than the next workday, additional BMPs to be added within 7 calendar days, and significant repairs to be completed within 7 calendar days and prior to any storm event (rainfall) and
    - Any third-party inspection reports are provided to the Stormwater Manager within 3 days of the inspection for any sites that require corrective measures, and within one week for any sites that do not require corrective measures.
- Require three inspections during active earth-moving phase of construction
- Require a minimum of one inspection annually until the project reaches substantial completion.
- Require a final inspection at project completion to ensure that permanent stabilization has been achieved and all temporary erosion and sediment controls have been removed, and
- Include use of the construction inspection form (or a similar form) provided in Appendix F of this SWMP.

Measurable Goal 4.4b. The Town will document construction sites that trigger the ordinance using an excel spreadsheet each year. The spreadsheet will contain the site's name, map and lot number, dates of inspections, and any enforcement actions and corrective actions taken.

2.5 MCM 5 Post-Construction Stormwater Management in New Development/ Redevelopment

The Town will continue to implement its Post Construction Stormwater Management Program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the Town's MS4 through implementation of the following BMPs as described in this section.

The Town of York Ordinances and Regulations are available at: Ordinances | York, ME (yorkmaine.org)

2.5.1 BMP 5.1 – Promote strategies to prevent or minimize water quality impacts

Responsible Party - Planner and Code Enforcement Officer

Measurable Goal 5.1a – The Town will rely on the Maine DEP Chapter 500 Stormwater Rules which provide stormwater treatment standards for sites that disturb one or more acres of land and are either: in the watershed of an Urban Impaired Stream or a lake most at risk that create 20,000 square feet of impervious cover, or in any other watershed that creates 1 acre or more of impervious cover, or in any watershed where 5 or more acres of land will be developed.

Measurable Goal 5.1b – The Town's current ordinances contain general provisions to prevent or minimize water quality impacts from development which includes notifying developers that they must consider Low Impact Development techniques in accordance with the requirements of the 2022 MS4 General Permit.

Specifically, the Town's Site Plan and Subdivision Regulations (Section 9.8 Stormwater Standards) require conformance to specific standards including that each applicant submit a statement to the Planning Board documenting proposed LID for the site. The Town will continue to implement and enforce this requirement.

2.5.2 BMP 5.2 – Maintain Post Construction Ordinance or Similar Measure

Responsible Party - Planner and Stormwater Manager

Measurable Goal 5.2a – During the 2013-2022 permit cycle, the Town passed a Post Construction Stormwater Management Ordinance (effective April 11, 2014) which requires that any site that disturbs one or more acres of land certify to the town annually by July 1 that they have inspected and maintained their stormwater BMPS. The town will continue to use an excel spreadsheet to track:

- The cumulative number of sites that have post construction BMPs discharging into the permittee' s MS4;

- The number of sites that have post construction BMPs discharging into the permittee's MS4 that were reported to the municipality;
- The number of sites with documented functioning post construction BMPs; and
- The number of sites that required routine maintenance or remedial action to ensure that the post construction BMP is functioning as intended.

Measurable Goal 5.2b – By 7/1/2023, a redline strikeout update to the Town's Post Construction Stormwater Management Ordinance will be prepared to state that for any sites reporting that maintenance is required:

- Deficiencies will be corrected within 60 days of identification and a record of the corrective action taken will be provided to the Town's Enforcement Authority within the same 60-day period.
- If it is not possible to correct the deficiency and notify the Town within 60 days, the property owner will coordinate with the Stormwater Manager to establish an expeditious schedule to correct the deficiency and will provide a record of the corrective actions taken.

The redline strikeout update will be offered to the York Voters via the November 2023 Warrant using procedures required by the Town Charter.

2.6 MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations

The objective of this MCM is to mitigate or eliminate pollutant runoff from municipal operations on property that is owned or managed by the permittee and located within the 2010 Urbanized Area through implementation of the following BMPs.

2.6.1 BMP 6.1 – Operations at Municipally Owned Grounds and Facilities

Responsible Party – Stormwater Manager

Measurable Goal 6.1a – During the previous MS4 permit cycle, the Town developed an inventory of municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, or parks and open space owned or operated by the town that have the potential to cause or contribute to stormwater pollution. The Town will review and update its inventory annually.

Measurable Goal 6.1b – During the previous MS4 permit cycle, the Town developed and implemented Operation and Maintenance (O&M) Procedures for the municipal operations listed in their inventory that had the potential to cause or contribute to stormwater pollution. The town will continue to implement these O&M Procedures and will review and update the O&M Procedures annually to iteratively improve strategies and practices to eliminate or better control pollutant discharges.

2.6.2 BMP 6.2 – Training

Responsible Party – Stormwater Manager

Measurable Goal 6.2a – The Town will conduct annual training as follows:

a. train at least 80% of the Public Works employees in the Beach Storage facility O&M Procedures.
b. train at least 80% of the municipal personnel who may impact stormwater at the other sites on the O&M Procedures Inventory (e.g., Police and Fire employees, Parks and Recreation employees, harbor master and shellfish coordinator).

Training will either be in person, via remote learning (such as Teams or Zoom), or via requirements to read and acknowledge the Stormwater O&M Procedures.

2.6.3 BMP 6.3 – Continue Street Sweeping Program

Responsible Party – Public Works Director

Measurable Goal 6.3a - Each permit year the town will continue to sweep all publicly accepted paved streets and publicly owned paved parking lots at least once a year soon after snowmelt.

The Town keeps a sweeping log of roads in Town and what date they were swept as documentation.

2.6.4 BMP 6.4 – Cleaning of Catch Basins

Responsible Party – Public Works Director

Measurable Goal 6.4a – The Town will inspect its catch basins for sediment content at least once every two years, but the Town will continue to attempt to inspect each catch basin annually if time and municipal budget allows and will clean catch basins that accumulate more than three inches of sediment.

Measurable Goal 6.4b – The Town will track which catch basins accumulate excess sediment (i.e., more than 50% of the sump contains sediment) to ensure those basins are inspected again the following year and cleaned if necessary. If a catch basin exhibits less than 25% sediment in its sump for two consecutive years, it is removed from the excess sediment list, and can be inspected again every two years.

Measurable Goal 6.4c – The Town will continue to beneficially re-use any catch basin grit that does not exhibit evidence of sewage, oil/grease, litter, or other pollutants in accordance with Maine DEP Solid Waste Management Rule 418 Beneficial Use of Solid Waste. Grit that exhibits evidence of pollutants will be profiled to assess its waste classification and disposed of at an appropriately licensed solid waste facility.

2.6.5 BMP 6.5 – Maintenance and Upgrading of Storm water Conveyances and Outfalls

Responsible Party – Public Works Director

Measurable Goal 6.5a – The Town will maintain and upgrade the stormwater conveyance systems based on the results of the catch basin, outfall, and ditch inspections, in accordance with the urgency of any needed repairs or maintenance. The Town continues to perform systematic capital upgrades of the storm drain system in correlation with the capital plan, and the road paving program for the town.

2.6.6 BMP 6.6 – Stormwater Pollution Prevention Plans (SWPPPs)

Responsible Party – Public Works Director

Measurable Goal 6.6a – During the last Permit Cycle, the Town prepared a SWPPP for the Beach Garage, but converted the SWPPP to an O&M Plan because the Town now only stores materials at this location (no maintenance or exterior work is conducted here). The Town does not have any other public works facilities, transfer stations, school bus maintenance facilities in the urbanized area and therefore does not need to maintain any SWPPPs.

If the Town plans to construct or move any of these facilities into the Urbanized area, a SWPPP will be prepared and implemented in accordance with the requirements of the 2022 MS4 General Permit prior to commencing operations.

2.7 Impaired Waters BMPs

As shown in Table 1, of Section 1.4 of this Plan, the Town does not discharge to any Urban Impaired Stream, and the Maine DEP confirmed that no additional actions need to be taken for any other impaired water as part of this Plan. Therefore, no BMPs or Measurable Goals are required to be implemented under this section.

3 GENERAL REQUIREMENTS

3.1 Certification

The General Permit requires that this Plan be certified by either a principal executive officer or ranking elected official. This section provides the necessary certification.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature: _____ Date: 1/27/2021

Name: Stephen H. Burns

Title: Town Manager

APPENDIX A

URBANIZED AREA MAP

NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas
York ME

Regulated Area:

UA Based on 2000 Census | UA Based on 2010 Census

0 1 2 3 4 Kilometers

0 1 2 3 Miles

Town Population: **12529**

Regulated Population: **6502**

(Populations estimated from 2010 Census)

N W E S

EPA

Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2013 Microsoft Corporation and its data suppliers

US EPA Region 1 GIS Center Map #8824, 8/6/2013

APPENDIX B

NOTICE OF INTENT and PERMITTEE SPECIFIC DEP ORDER

NOTICE OF INTENT TO COMPLY WITH MAINE GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER FROM MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4)

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

PERMITTEE INFORMATION					
MS4 Entity	Town of York			Permittee ID #	MER041000
Name and title of chief elected official or principal executive officer	Stephen Burns, Town Manager				
Mailing Address	186 York Street				
Town/City	York	State	ME	Zip Code	03909
Daytime Phone	207-363-1000	Email	sburns@yorkmaine.org		
PRIMARY CONTACT PERSON FOR OVERALL STORMWATER MANAGEMENT PROGRAM (if different than PEO/CEO)					
Name and Title	Leslie Hinz, Stormwater Manager				
Mailing Address	186 York Street				
Town/City	York	State	ME	Zip Code	03909
Daytime Phone	207-363-1002	Email	lhinz@yorkmaine.org		
STORMWATER MANAGEMENT PLAN (SWMP)					
Urbanized Area (sq. mi.)	8.5				

I have attached our updated SWMP with ordinances, SOPs, forms. ☐

Name of streams, wetlands, or waterbodies to which the regulated small MS4 discharges (*attach additional sheets as necessary*):

Atlantic Ocean (Long Sands Beach, Nubble Point, Short Sands Beach, Cape Neddick Harbor), York River and unnamed tributaries and wetlands, Dolly Gordon Brook, Barrell Mill Pond, Little River, Cape Neddick River

List of impaired waterbodies that receive stormwater from the regulated small MS4 (*attach additional sheets as necessary*):

For bacteria only: Atlantic Ocean (Long Sands Beach, Nubble Point, Short Sands Beach, Cape Neddick Harbor), York River and unnamed tributaries and wetlands, Barrell Mill Pond, Cape Neddick River

CERTIFICATION

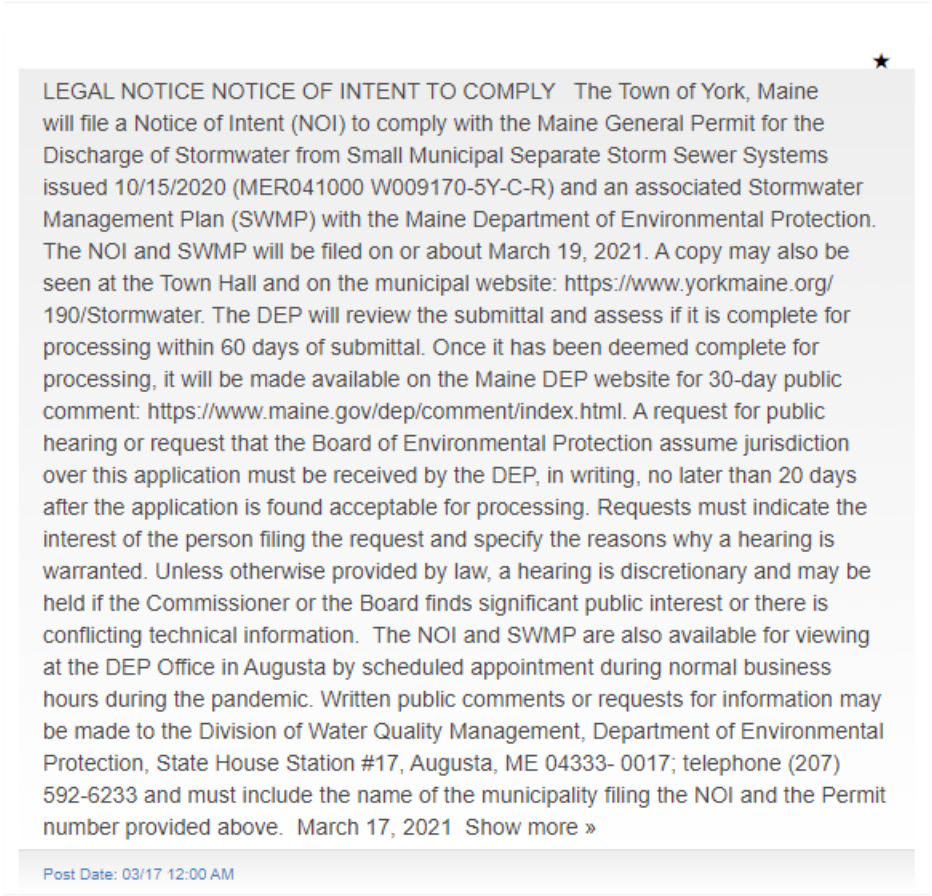
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Permittee		Date	2/24/2021

This NOI registration form must be filed with the Department at the following address:

Stormwater Program Manager
Maine Department of Environmental Protection
Bureau of Water Quality
17 State House Station
Augusta ME 04333-0017
Rhonda.Poirier@maine.gov

OFFICE USE ONLY							
Date Recieved		Staff		Date Accepted		Date Not Accepted	



LEGAL NOTICE NOTICE OF INTENT TO COMPLY The Town of York, Maine will file a Notice of Intent (NOI) to comply with the Maine General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems issued 10/15/2020 (MER041000 W009170-5Y-C-R) and an associated Stormwater Management Plan (SWMP) with the Maine Department of Environmental Protection. The NOI and SWMP will be filed on or about March 19, 2021. A copy may also be seen at the Town Hall and on the municipal website: https://www.yorkmaine.org/190/Stormwater. The DEP will review the submittal and assess if it is complete for processing within 60 days of submittal. Once it has been deemed complete for processing, it will be made available on the Maine DEP website for 30-day public comment: https://www.maine.gov/dep/comment/index.html. A request for public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP, in writing, no later than 20 days after the application is found acceptable for processing. Requests must indicate the interest of the person filing the request and specify the reasons why a hearing is warranted. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is conflicting technical information. The NOI and SWMP are also available for viewing at the DEP Office in Augusta by scheduled appointment during normal business hours during the pandemic. Written public comments or requests for information may be made to the Division of Water Quality Management, Department of Environmental Protection, State House Station #17, Augusta, ME 04333- 0017; telephone (207) 592-6233 and must include the name of the municipality filing the NOI and the Permit number provided above. March 17, 2021 Show more »

Post Date: 03/17 12:00 AM

Public Notice filed in York Weekly on 3/17/2021

APPENDIX C

SUMMARY OF PUBLIC COMMENTS RECEIVED

APPENDIX D

EDUCATION AND OUTREACH TOOLS FOR AWARENESS

Appendix D: Education & Outreach Tools, Levels of Effort, and Effectiveness Benchmarks

Below is a list of tools with their corresponding minimum level of effort and effectiveness benchmark that will be selected from each year to implement BMP 1.1 for the Statewide Awareness Program.

Outreach Tool	Minimum Level of Effort	Effectiveness Benchmark
Poster	10 posters/municipality	Total number of posters distributed
Flyer	1 flyer	Total number of flyers distributed
Brochure	1 brochure	Total number of brochures distributed
Rack Card	1 rack card	Total number of rack cards distributed
Newsletter Article	2 newsletter articles	Total number of newsletters distributed
Post Card	1 post card	Total number of postcards distributed
Factsheet	1 factsheet	Total number of factsheets distributed
Sign	5 signs/municipality	Total number of signs distributed
Story Walk	1 story walk	Number of QR code (or similar technology) scans from signs
Story Map	1 regional story map	Number of visitors to webpage
Stormwater Geocaching	1 regional activity (14 sites)	Number of participants per site
Augmented Reality App	1 regional activity (14 sites)	Number of app downloads Number of engagements within the app
Municipal Electronic Message Board	3 messages	Amount of time message was displayed
Email Newsletter	4 email newsletters	Number of people reached with email Number of interactions with email (e.g., link clicks)
Municipal Website Content	Annual updates to website stormwater content	Number of visitors to stormwater webpage(s)
Think Blue Maine Website Content	Semiannual updates to website content	Number of visitors to website
Social Media Post (each platform counts as separate tool)	12 posts	Amount of post engagement (e.g., reactions, comments, shares, etc.)
Social Media Ad (each platform counts as separate tool)	Ad(s) run 90 days (multiple ads may be run for shorter durations to total 90 days)	Amount of ad engagement (e.g., reactions, comments, shares, link clicks, etc.) Number of people reached with ad
Social Media Video (each platform counts as separate tool)	3 videos	Amount of video engagement (e.g., views, reactions, comments, shares, etc.)
Online ad	Ad(s) run 90 days (multiple ads may be run for shorter durations to total 90	Number of people reached with ad Amount of ad engagement (e.g., link clicks)

Outreach Tool	Minimum Level of Effort	Effectiveness Benchmark
	days)	
Radio Ad	1 radio ad	Number of people reached with ad
Radio Segment	1 radio segment	Number of people reached with segment
Television Ad (broadcast or streaming)	1 television ad	Number of people reached with ad
Television News Segment (broadcast or streaming)	1 television news segment	Number of people reached with segment
Newspaper Article	1 newspaper article	Number of people reached with article
Newspaper Ad	1 newspaper ad	Number of people reached with ad
Webinar/Workshop	7 hours of training offered (multiple webinars/workshops may be offered to reach 7 hours)	Number of workshop attendees
Social Gathering	3 events	Number of interactions
Tabling	3 events	Number of interactions
Outreach partnership with local retailer	50% of industry retailers in region participating	Number of local retailers participating
Outreach partnership with local organization	3 content shares by partner organization	Number of people reached
Item with branding/messaging	1 item with branding/messaging	Total number of items distributed
A DEP-approved tool	Minimum level of effort will be determined based on the tool	Effectiveness benchmark will be determined based on the tool

APPENDIX E

IDDE PLAN AND QUALITY ASSURANCE PROJECT PLAN

Illicit Discharge Detection and Elimination Program

for the

Town of York, Maine

for the

General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems

June 2014

Last updated March 2021

Integrated Environmental ENGINEERING

12 Farms Edge Road
Cape Elizabeth, Maine 04107
Ph: 207-415-5830

www.IntegratedEnv.com

Table of Contents

List of Tables

List of Attachments

1.0 INTRODUCTION

Maine DEP defines an illicit discharge as any discharge to an MS4 that is not composed entirely of storm water, except that the following are not considered illicit discharges:

- Discharges authorized under a Maine DEP permit (38 M.R.S §413.)
- Uncontaminated groundwater,
- Water from a natural resource (such as a wetland), or
- an allowable non-storm water discharge.

See Section 3.0 of this Plan for a list of the allowed non-storm water discharges.

The Town of York is subject to the requirements of the Maine Department of Environmental Protection (Maine DEP) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (hereafter referred to as the MS4 General Permit).

The MS4 General Permit requires permittees to address six Minimum Control Measures throughout the Town's Urbanized Area:

1. Education/ Outreach on Stormwater Impacts
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

This document describes the IDDE Program for the Town of York, Maine. The IDDE Program described in this document fulfills the Minimum Control Measure 3 IDDE requirements specified in Part IV.C.3.b of the 2022 MS4 General Permit.

1.1 IDDE Responsibilities in the Town

The Town's Stormwater Manager is responsible for overall permit compliance, and for implementation of this IDDE Plan. The following is a summary of the IDDE Responsibilities described in this Plan:

Stormwater Manager: conducts outfall inspections, assists with ditch inspections, and conducts illicit discharge investigations, supported by third-party contractors where necessary, provides primary enforcement for non-stormwater discharge ordinance .

Public Works staff: conduct most mapping activities including hiring of third-party contractors for GIS mapping, conduct catch basin inspections and monitoring, ditch inspections, and assists with illicit discharge inspections as needed.

Planner: facilitates any required ordinance changes related to non-stormwater discharges.

Director of GIS and Technology: manages licensing for GIS system and provides technical assistance as needed.

1.2 Amendments and updates to the IDDE Program

The MS4 General Permits are designed to provide coverage for five-year periods. The first MS4 General Permit applicable to the Town of York became effective July 1, 2013 and was due to expire June 30, 2018. The 2013 MS4 General Permit was administratively continued until a new permit becomes effective 7/1/2022.

This IDDE Program has been developed to meet the requirements of the 2013 and 2022 General Permits. This Plan will be updated if any of the following occur

- requirements associated with a new permit change,
- the Town of York identifies that the Program is not effective;
- municipal operations change which need to be reflected in this Program.

The Town has a Stormwater Manager, who is responsible for implementing many of the stormwater permit requirements, and for coordinating Town staff where permit requirements are outside her duties. Whenever changes are needed, the Stormwater Manager will either modify this IDDE program, or engage a third party to update the document, coordinating with other Town Staff to ensure the document reflects practices agreed to by all involved.

The following table briefly summarizes the origin and amendments to this document.

Date of Document	**Description of changes**
June 2014	Development of original document
July 2016	Updated text reflecting how changes to the GIS mapping system are conducted
February 2017	Updated naming protocols for infrastructure and other minor updates
March 2021	Updated document to incorporate 2022 MS4 General Permit requirements.

1.3 Typical Illicit Discharges

The Center for Watershed Protection (CWP) developed a comprehensive IDDE Manual in 2004 (updated in 2011) which classifies illicit discharges into three categories related to frequency of discharge. This categorization allows communities to develop a comprehensive IDDE program that will address all kinds of illicit discharges. The three categories of illicit discharges identified in the CWP manual are described below:

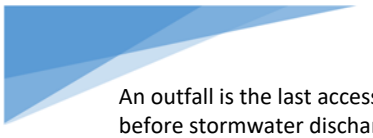
1. Transitory illicit discharges are typically one-time events resulting from spills, breaks, dumping, or accidents. Examples of transitory illicit discharges include:

    a. paint equipment rinse water
    b. carpet cleaning water
    c. sediment from construction sites
    d. wash water from vehicles other than individual residential car washing by an owner
    e. oil or gasoline spill from a vehicle crash or other source
    f. yard waste
    g. litter or pet waste

    Transitory illicit discharges are often reported to an authority through a citizen complaint line or following observation by a municipal employee during regular duties. Because they are not recurring, they are the most difficult to investigate, trace, and remove. The best method to reduce transitory discharges is through general public education, education of municipal personnel to minimize spills and accidents, tracking of discharge locations (to

identify potential patterns associated with spills), and enforcement of an illicit discharge ordinance.

2. Intermittent illicit discharges occur occasionally over a period of time (several hours per day, or a few days per year). Intermittent discharges can result from legal connections to the storm drain system, such as a legal sump pump connection that is illegally discharging washing machine water, a single home sanitary connection, or from illegal connections such as floor drains from industrial or commercial operations. Intermittent discharges can also result from activities such as excessive irrigation or wash down water from exterior areas. The 2022 General Permit requires that MS4s consider illicit discharges that might result from dumping. One example of this would be trash or litter dumped in/near stormwater structures might leak leachate into the system intermittently. Because intermittent discharges are longer lasting than transient, they are more likely to be discovered during an opportunistic or regularly scheduled inspection. They are less difficult to trace and remove than transitory discharges but can still present significant challenges. These discharges can have large or small impacts on water bodies depending on pollutant content.



An outfall is the last accessible point before stormwater discharges to a waterbody. Some things that are NOT outfalls include: driveway culverts that connect ditch segments, culverts that convey water bodies under roadways, and pipes that discharge to other stormwater infrastructure elements.

3. Continuous illicit discharges are typically the result of a direct connection from a sanitary sewer, overflow from a malfunctioning septic system, or inflow from a nearby subsurface sanitary sewer that is malfunctioning. Continuous illicit discharges are usually easiest to trace and can have the greatest pollutant load. (CWP and Robert Pitt 2004 and 2011)

1.4 Overview of IDDE Program Components

The MS4 General Permit requires an IDDE program be developed and implemented which contains six components. An overview of each component is provided in this subsection, and the remaining sections of this document describe how the Town of York is implementing each component.

- Development of a watershed-based map: The Town is required to develop a map of the storm sewer system infrastructure including watersheds, catch basins, connecting surface and subsurface piping, outfalls, and ditches. The catch basins and outfalls must

have unique identifiers. The following information must be included in the map system for outfalls: the type of outfall (a connected pipe, a culvert, or a ditch), the material, its size, the name and location of the nearest named water body to which it discharges. Section 2.0 of this document describes the Town's watershed-based map.

- Authority to Prohibit Illicit Discharges: To the extent allowable under state or local law, the Town must effectively prohibit, through an ordinance or other regulatory mechanism, non-stormwater discharges into the system and implement appropriate enforcement procedures and actions. Section 3.0 of this document describes how the Town's Non-Stormwater Discharge Ordinance is implemented.

- Identification of High Priority Areas for Inspections: Prior MS4 General Permits required that the Town identify priority areas that need to be protected from illicit discharges. The 2022 MS4 General Permit does not have this requirement, but it does require that the Town have "Procedures for prioritizing watersheds". The Town uses the prioritization for illicit discharge inspections as described in Section 4.0 of this document, including a discussion of the basis for determining the high priority areas.

- Procedures to Locate Illicit Discharges: The Town must develop procedures for locating illicit discharges (i.e., visual screening of outfalls for dry weather discharges, dye or smoke testing). The Town addresses this by conducting dry weather outfall inspections and assessing catch basins for evidence of pollutants, and by conducting opportunistic ditch inspections. The 2022 MS4 General Permit also requires monitoring be conducted on outfalls that are flowing during dry weather. Section 5.0 of this document describes the Town's inspection program.

- Procedures to Investigate and Remove Illicit Discharges: The Town must develop procedures for locating the source of the discharge and procedures for the removal of the source. Sections 6.0 and 7.0 of this document describe how the Town investigates and removes illicit discharges.

- Procedures to Track Illicit Discharges: The Town must develop procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to the removal. Section 8.0 describes how the Town tracks illicit discharges.

- Emergency Notifications: Section 9.0 describes procedures for emergency notifications of illicit discharges outside of the Town's normal business hours.

Section 10.0 of this document describes the record retention requirements of the MS4 General Permit and Section 11.0 of this document provides references.

2.0 STORMWATER INFRASTRUCTURE MAP

The Town of York maintains stormwater infrastructure information as a component of its Geographic Information System (GIS). York's stormwater structures were created from GPS data collection, subdivision plans, Maine Department of Transportation plans, Maine Turnpike Authority Plans and from existing known stormwater infrastructure. Field verification has been used when needed to refine locations and infrastructure information.

The Town uses GPS enabled mobile data collection devices to collect data when conducting inspections. Field personnel have the ability to create, delete and update infrastructure information while conducting inspections.

Though the stormwater infrastructure information is not available to the general public, it is available to all public works employees and the Stormwater Manager. The stormwater infrastructure is made available to the public whenever requested verbally or in writing. Attachment A contains clips from the Town's GIS showing the watershed layers and types of information available.

2.1 Watershed-based Naming Protocols for Infrastructure

The Town of York recognizes the Natural Resources Conservation Service (NRCS) national hydrologic unit code (HUC) numbering system. The NRCS national HUC system identifies watersheds down to the subwatershed level, which have 12-digit HUC numbers. The Urbanized Area of the Town has one watershed, and three sub watersheds within its boundaries.

The Town of York has further delineated drainage areas within each subwatershed, and has assigned additional 2-digit unique qualifiers, resulting in a 14-digit numbering system that is consistent with the NRCS HUC system. The following table summarizes the numbering system

used within the Town of York and shows what named water bodies are contained within each 14-digit Drainage Area.

Infrastructure in the Town's GIS has been assigned unique alpha-numeric tags that are based on codes that represent the area the infrastructure is located in. For example, infrastructure near Long Beach contains the two-digit code "LB." The codes used in the mapping system are shown in the last column of Table 1 for infrastructure that is owned and operated by the Town.

Table 1
Basis for Stormwater Infrastructure Numbering System
Town of York, Maine

Watershed (10-digit HUC)	**Subwatershed (12-digit HUC)**	**Drainage Area (14-digit HUC)**	**Areas and Codes used in infrastructure naming Town system**
Frontal Drainages of Southern York County (0106000311)	Stevens Brook – Cape Neddick River (0106000311-02)	Northern Coastal Drainage (0106000311-02-01)	HP- High Pasture PC- Pint Cove
	Stevens Brook – Cape Neddick River (0106000311-02)	Cape Neddick River Drainage (0106000311-02-02)	CH- Cape Neddick Harbor CN- Cape Neddick Village CP- Chases Pond MA- Mount A LG- Logging Road PH- Pine Hill SH- Simpson Hill TC- Trestle Cove

Table 1 Basis for Stormwater Infrastructure Numbering System Town of York, Maine			
	Stevens Brook – Cape Neddick River (0106000311-02)	Central Coastal Drainage (0106000311-02-03)	BP- Barn Point BS- Bridges Swamp CB- Cow Beach HB- Harbor Beach IP- Ice Pond LB- Long Beach District LC- Lobster Cove LR- Little River NB- Nubble NP- Nubble Point OS- Oceanside RR- Roaring Rock SP- Sohier Park UP- Ulan Pond YB- York Beach
	York River (0106000311-03)	York River Drainage (0106000311-03-01)	BH- Birch Hill BM- Barrells Mill Pond BY- Brickyard CH- Cider Hill Creek HI- Harris Island IN- I-95 North SB- Scotland Bridge area SS- Southside Road-south of York River WT- Witchtrot Road Area YC-York Corner YH- York Harbor YR- York River near Sewalls Bridge
	Brave Boat Harbor (0106000311-04)	Southern Coastal Drainage (0106000311-04-01)	BB- Brave Boat Harbor

Catch basins in the area are named as XX-YYY where the X's are the two-digit area codes, and the Y's are a numeric value between 0 and 999. Outfalls are similarly named, with the exception

that an “O” for outfall follows the XX code. For example, the outfall in the Southern Coastal Drainage area of Brave Boat Harbor is called BBO-001.

Although the infrastructure names do not reflect ownership, the GIS contains fields that identify who owns the infrastructure and who maintains it.

2.2 Procedures to Update Map of Infrastructure

The GIS is updated annually at a minimum to reflect any physical changes to the stormwater infrastructure.

There are several pre-established meetings among and between Town Departments that facilitate communications regarding changes to the system. The meetings are described here and are followed by a description of each of the three general types of scenarios under which infrastructure may be changed, and how the Town incorporates those changes in the GIS.

Monthly Technical Review Meetings: The Planning Assistant schedules and facilitates a Monthly Technical Review Meeting. At this meeting, the following personnel and Department representatives meet to discuss municipal and private infrastructure projects and issues: Public Works, Code Enforcement, Planning, Police Department, Fire Department, Water District, Sewer District, and Stormwater Manager. As part of these meetings, Public Works provides a status on any projects that include changes to the stormwater infrastructure or roads.

Weekly Progress Meetings: During any Town-funded construction project which uses a third-party contractor, a weekly progress meeting is held to describe the status of the project. Generally, the meetings are coordinated and attended by Public Works and the contractor. Beginning in 2016, Public Works began notifying the Stormwater Manager of the meetings so she may attend.

Monthly Stormwater/DPW Meetings: The Public Works Director, Public Works Foreman, and Stormwater Manager meet monthly to discuss stormwater issues. The Stormwater Manager prepares a written agenda for the meetings which includes: a review of the status of any Town-funded projects that will use a third party design engineer or contractor, a review of any small changes that have been made to the system by the public works crews, and scheduling a time during the quarter when the Public Works Foreman and Stormwater Manager can conduct field work to update the GIS to reflect the physical changes to the system (see infrastructure changes types 1 and 2 below).

The following describes the three general types of scenarios under which infrastructure may be changed, and how the Town incorporates those changes in the GIS:

1. Minor Changes by Public Works Department. As part of their regular duties, the Public Works Department constructs minor changes to the system based on immediate or planned need typically without formal design drawings. These changes could be as simple as adding in a new catch basin, replacing a road culvert or catch basin, or may include making changes to several components of the infrastructure. The Public Works Foreman updates the GIS directly or by using the Town's GPS equipment, or informs a third-party contractor using a Map Note of any needed changes. When these types of changes are made, the Public Works Department is responsible for tracking them and informing the Stormwater Manager about them at the Monthly Stormwater/DPW meeting.

2. Designed Changes with no As-built Drawings. More significant changes are typically constructed after preparation of formal design drawings by a third-party engineering firm, but no as-built drawings are prepared. These types of projects typically take

weeks or months to design and construct. The projects are discussed during the Monthly Planning Meetings (for the design phase) and during the Weekly Progress Meetings (for the construction phase) so that all departments are aware of the project. When construction is completed, the Stormwater Manager and Public Works Foreman specify a time to conduct a formal field effort to complete the changes at their Monthly Stormwater/DPW meeting. The Stormwater Manager and Public Works Foreman will use the Town's GPS equipment to enter in the changes as they confirm them in the field.

3. Designed Changes with As-built Drawings. When more significant changes are designed by a third-party engineer, as-built drawings and/or geo-referenced GIS-compatible electronic files are requested during the initial bid process. These types of projects also typically take weeks or months to design and construct and are discussed during the monthly planning meetings (for the design phase) and during the Weekly Progress Meetings (for the construction phase) so that all departments are aware of the project.

   When construction is completed, the as-built drawing can take several additional weeks or months to prepare. When the as-built drawings are provided to the Town (typically to the Public Works Department), the electronic files must be accompanied with the proper metadata to ensure that the data can be accurately and easily layered over the existing GIS data, and a pdf of the overall final project. An example paragraph that can be used for all Town-issued Requests for Proposals (RFPs) for design work is contained in Attachment B.

The Monthly Stormwater/DPW meetings should include an agenda item to check in on the status of receipt of the as-built drawings, and incorporation into the GIS. Quality Control of the

data entered from items 1, 2, and 3 above is conducted as follows:

After field or as-built additions to the GIS, the Stormwater Manager will review the changes. Any further editing, post-processing, or clean-up that is required shall be performed by either the Stormwater Manager, Public Works Foreman, or the original as-built data provider (depending on how much editing or clean-up is required). For example, after loading the GPS data into the GIS system, or after loading as-built data into the Town's GIS, the structures need to be snapped together to ensure connectivity of infrastructure.

3.0 AUTHORITY TO PROHIBIT ILLICIT DISCHARGES

The Town of York authority to prohibit illicit discharges became effective in November 2014 as a stand-alone Non-Stormwater Discharge Ordinance. The ordinance was modified to be Town-specific from a model ordinance created by the Maine Municipal Association in 2006 for other Towns that are regulated by the MS4 General Permit. Though the MS4 General Permit is only applicable to the Urbanized Area of Town, the Town implements the Non-Stormwater Discharge Ordinance in all areas of Town.

The Ordinance allows the following non-stormwater discharges to the storm drain system:

- landscape irrigation;
- diverted stream flows;
- rising ground waters;
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20);
- uncontaminated pumped ground water;
- uncontaminated flows from foundation drains;
- air conditioning and compressor condensate;
- irrigation water;
- flows from uncontaminated springs;

- uncontaminated water from crawl space pumps;
- uncontaminated flows from footing drains;
- lawn watering runoff;
- flows from riparian habitats and wetlands;
- residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used);
- hydrant flushing and firefighting activity runoff;
- water line flushing and discharges from potable water sources;
- individual residential car washing.

The Town's Stormwater Manager administers the ordinance, and any code enforcement officer may enforce the ordinance.

It should be noted that discharges associated with dye testing are also allowed with verbal notice to any code enforcement officer.

In addition, discharges of hydrant and water line flushing are required to be dechlorinated if they are to be discharged to a portion of the MS4 system which discharges to a small stream. In accordance with the Maine DEP 11/18/2016 Issue Profile for Drinking Water System Discharges to Regulated Small MS4s, the York Water District either aerates or dechlorinates during flushing to meet Total Residual Chlorine (TRC) acute water quality criteria as follows:

- Fresh water 19 ug/L (adjusted to 50 ug/L, per the Maine DEP as the reporting limit for available reliable and consistent test methods)
- Marine water 13 ug/L (adjusted to 50 ug/L, per the Maine DEP as the reporting limit for available reliable and consistent test methods)

The York Water District flushes the system annually, typically in the summer and provides an annual report to the Town describing water dechlorination methods in use and testing results for any flushing conducted.

4.0 IDENTIFICATION OF PRIORITY AREAS

Select Town and Sewer District staff met on April 28, 2014 to identify priority areas where illicit discharges might be present, and to identify areas that may need special protection from illicit discharges. Assisted by Integrated Environmental Engineering, Inc., the group followed a prioritization method developed by the Center for Watershed Protection. The method consists of the following steps:

1. Dividing the Town into areas that can be evaluated for illicit discharge potential.
2. Selecting illicit discharge potential screening factors that apply to one or more of the areas and identifying the criteria that will be used to evaluate each area.
3. Evaluating each area using the screening factors and assigning a numeric score based on their illicit discharge potential.

For this activity, the Town's drainage (effectively 14-digit HUC Drainage Areas) was evaluated using the GIS map.

The Town reviewed the screening factors presented in Table 2 to assess their applicability to each of the areas. The listing shows which screening factors were retained and which were eliminated. The last column of the table describes the rational for those criteria that were eliminated.

This prioritization summary was reviewed in March 2022 and minor updates were made based on new mapping and illicit discharge information, but the overall priorities for the Town did not change.

TABLE 2

Priority Area Screening Factors Considered
York, Maine

Screening Factor	Retained or Eliminated	Rational for elimination
Poor dry weather receiving water quality	Retained for consideration as Receiving Water Quality	
Density of generating sites	Retained	
Density of Stormwater infrastructure	Retained	
Size of Subwatershed	Retained	
# Acres in Urbanized Area	Retained	
Average development age	Retained	
Receiving water status/ (drinking water supply, beaches, shellfish, impaired areas, TMDLs with WLA)	Retained for consideration as Receiving Water Quality	
History of discharge complaints / knowledge of suspect discharges	Retained	
Density of aging septic systems (rural)	Retained as aged septic systems	
Sewer conversion status (previously combined)	Eliminated	Town has never had combined sewers
Sewer conversion (previously septic)	Retained	
Historic industrial operations	Eliminated	Few industrial facilities are present in town
Sewer Crossings/common trench constructions	Retained	
Type of Development	Retained	

Using the screening factors that were retained as applicable to the Town, each of the Drainage Areas was evaluated and assigned a score to describe whether the area exhibited a high potential for that factor to be present. Once all the areas were assigned scores for all of the screening

factors, the scores were averaged and a final score for the area was obtained. A score of 3 represents a high priority area, a score of 2 represents a medium priority area, and a score of 1 represents a low priority area.

Table 3 shows the scores for each retained screening factor for each of the five areas identified in within the York Urbanized Area. Based on this procedure, the Cape Neddick River and Central Coastal Drainage Areas have the highest normalized priority scores. As such, illicit discharge inspections were conducted first in these two drainage areas, and as potential illicit discharges are identified, these areas will be investigated first.

Table 3
Worksheet to Prioritize Areas for Illicit Discharge Inspections
York, Maine

Drainage Area/ Subwatershed	Screening Factors – Categories of Information Reviewed																		Score	
	Density of Stormwater Infrastructure		Size of Subwatershed		# Acres in Urbanized Area		Average development age		Receiving Water Quality		History of Discharge Complaints/ knowledge of suspect discharges		Aged Septic systems		Sewer Conversion status (from septic to public sewer)		Sewer Crossings/common trench constructions		Type of Development			
	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Notes	Score	Raw Score	Normalized IDP Score
Northern Coastal Drainage (in Northern Portion of Stevens Brook-Cape Neddick River subwatershed 0106000311-02)	Obtained from GIS	1	1,613 acres - Obtained from GIS	1	See Urbanized Area Map	1	Obtained from GIS 1981	2	No impaired waters or areas that specifically require protection are present in this drainage area.	1	None known.	1	Based on 2017 Inspections	2	Sewer District is prohibited from extending sewer into this area (Volume 1 Comprehensive Plan).	NA	Obtained from GIS - None	NA	Low density residential	1	10	**1.25**
Cape Neddick Drainage (in Northern Portion of Stevens Brook-Cape Neddick River subwatershed 0106000311-02)	Obtained from GIS	3	5,787 acres - Obtained from GIS	2	See Urbanized Area Map	2	Obtained from GIS 1971	2	The Cape Neddick River is impaired for Bacteria and listed in the 2009 Bacteria TMDL. A grass roots organization has formed to help restore the water quality of the River (Cape Neddick River Watershed Association).	2	Code Enforcement is actively investigating several areas.	3	Based on 2017 Inspections	2	Sewer District is prohibited from extending sewer into this area (Volume 1 Comprehensive Plan).	NA	Obtained from GIS - None	NA	Medium density residential	2	18	**2.3**
Central Coastal Drainage (in Southern Portion of Stevens Brook-Cape Neddick River subwatershed 0106000311-02)	Obtained from GIS	3	5,387 acres - Obtained from GIS	2	See Urbanized Area Map	3	Obtained from GIS 1968	2	The Little River is the only water that is listed as impaired and is included in the 2009 Bacteria TMDL.	3	Code Enforcement is actively investigating several areas.	3	Based on 2017 Inspections	2	Sewer was extended into this area, but many are still on septic. In particular, there are septic systems along Long Sands Road, on Nubble, and near the Elementary school.	2	Obtained from GIS - 116 crossings	2	Commercial and high density residential in many areas.	3	25	**2.5**
York River Drainage (in York River subwatershed 0106000311-03)	Obtained from GIS	3	20,448 acres - Obtained from GIS	3	See Urbanized Area Map	3	Obtained from GIS 1968	2	The York River, York River Harbor and Barrells Millpond are impaired for bacteria and are listed in the 2009 Bacteria TMDL. However efforts by the Town removed a number of failed septic systems, opening portions of the River to shell fishing conditionally.	2	The Town corrected many issues when they made efforts to re-open shell fishing in parts of the York River. Few additional issues are left.	1	Based on 2017 Inspections	2	Most new construction is on sewer. Town has reviewed older septic systems, but older septic system are present.	2	Obtained from GIS -46 crossings	1	Medium density residential and some commercial	2	21	**2.1**
Southern Coastal Drainage (in Brave Boat Harbor 0106000311-04)	Obtained from GIS	1	1,903 acres - Obtained from GIS	1	See Urbanized Area Map	1	Obtained from GIS 1982	2	No impaired waters or areas that specifically require protection are present in this drainage area.	1	None known.	1	Based on 2017 Inspections	1	Sewer District is prohibited from extending sewer into this area (Volume 1 Comprehensive Plan).	NA	Obtained from GIS - None	NA	Low density residential	1	9	**1.1**

Category Definitions

High (Score = 3)	> 20		Large		Most		Old Development that has not been redeveloped (>50 years old)		Water is of high quality, and requires protection (drinking water source, shellfish that is closed due to stormwater or unknown sources or has high value recreation)		Many known issues		Many		If converted from combined sewers prior to 1990 or If located in an areas that is newly on sewer (mixed septic and sewer systems)		If a high number of crossings are present (100 or more), or many sewer lines in close proximity to storm drain lines.		Industrial sites, or High density residential			
Medium (Score = 2)	~ 10 - 20		Medium		Medium amount		10 - 50 years old		Water is of poor quality (impaired)		Unknown or not many known issues		Not many		Unknown or suspected issues		If not many crossings are present (50-100), or there are not a lot of sewer lines in close proximity to storm drain lines.		Commercial sites or medium density residential			
Low (Score = 1)	<10		Small		Small amount		Newly developed areas (<10 years old)		Not a high or low quality water.		Few known issues		very few		Recently converted with good re-connection and construction oversight		If less than 50 crossings are present,		Low density residential, undeveloped or open space.			
Not applicable																				

Notes:
High Scores equate to high Illicit Discharge Potential (IDP)

5.0 PROCEDURES TO LOCATE POTENTIAL ILLICIT DISCHARGES

The Town of York uses the following methods to locate illicit discharges:

1. Observations during catch basin cleaning
2. Citizen reports of illicit discharge issues
3. Dry weather outfall inspections
4. Outfall Sampling and Analysis
5. Ditch inspections
6. Opportunistic Inspections

Each of these methods is described in the following subsections. The inspections are conducted using an iPad and stored with the GIS spatial data. Attachment C contains a table showing the fields that are completed during outfall, ditch and catch basin inspections using the GIS.

Follow-up items are documented using the Town's citizen service initiative, "QAlert™", which is used primarily to monitor and track maintenance and other work items related to Public Works Operations. The QAlert application is used primarily by Public Works employees, but the application is also available on the Town's Public Works website to allow citizens to report issues to the Department. Any reports of potential illicit discharges are automatically forwarded to the Stormwater Manager using QAlert.

5.1 Catch Basin Cleaning Inspections

Each year, public works staff attempt to inspect all the Town's catch basins to assess which need to be cleaned. The staff document the inspections using a mobile device application that is linked to the Town's GIS. During this inspection process, the staff are also inspecting to assess if any oil, litter, sewage, or other evidence of illicit discharges is present. If the staff see any evidence of illicit discharges, the evidence is documented on the mobile inspection

application, and the employee sends a QAlert notice into the QAlert system.

5.2 Citizen Reports of Illicit Discharges

Citizen reports of illicit discharge issues received by phone by either the Public Works Department administrative assistant or by a code enforcement officer will be entered into the QAlert system for future investigation by the Stormwater Manager.

As the QAlert system receives wider use by the general public (either through mobile applications or through the Town websites), citizen reports of illicit discharges will be routed directly to the Stormwater Manager for further investigation.

5.3 Dry Weather Outfall Inspections

The MS4 General Permit requires outfalls (piped and ditch outfalls) be inspected once per five-year permit term, however, in York, dry weather outfall inspections are conducted annually throughout the Urbanized Area when time and budget allow. If time and budget do not allow, the Town conducts inspections beginning in the highest priority areas identified in Section 4.0 (Cape Neddick River and Central Coastal Drainage Areas).

The Town will generally inspect piped and ditch outfalls as follows:

- Field inspection will be performed during periods of dry weather where no significant precipitation has occurred in the preceding 72 hours;
- Inspections will be performed during periods low flow where field inspections may be performed in a safe and efficient manner;
- Inspections will be performed during periods of no snow cover and prior to the growth of vegetation (or after leaves have fallen) such that outfalls may be easily spotted;

- Observations will include the follow at a minimum: observations of sheen, discoloration, foaming, evidence of sanitary sewage, excessive algal growth and similar visual indicators, and detection of odor;
- Photographs will be taken to document the condition of the outfall at the time of inspection if practicable.
- MS4 outfalls will be inspected where the Town has safe and legal access to the structure to be inspected.
- If a potential illicit discharge is identified, an entry will be made into the QAlert system to initiate investigation into the source.

In some instances, the inspector may inspect a private residential or commercial outfall, if visible from a public right of way.

The inspection data are extracted by a third-party contractor each year after inspections are completed and stored in an excel table. Attachment C shows the fields and parameters used by the Stormwater Manager to complete the outfall inspection.

5.4 Outfall Sampling and Analysis

Outfall sampling and analysis is required under the 2022 MS4 General permit when an outfall is observed to be flowing during dry weather conditions whether or not it has exhibited evidence of an illicit discharge.

Outfalls and/or other structures may also be sampled if other evidence of illicit discharges is observed during inspection. The Stormwater Manager may solicit the assistance of a third-party contractor to collect a sample for field screening depending on the conditions encountered.

A Quality Assurance Project Plan (QAPP) has been developed to provide sampling personnel the information that will assist them in collecting samples and using field equipment, test kits and

obtaining analyses. The QAPP describes the sampling procedures that should be used as well as the analytical methods and field equipment that are appropriate for use in investigating potential illicit discharges and flowing outfalls. The QAPP also provides guidance on interpretation of the results obtained so that investigators can make informed decisions about whether to continue investigating a potential source, or whether the results indicate a flowing outfall might be from a natural source. The QAPP is provided in Attachment D to this IDDE Plan.

Wet weather sampling is not required by the MS4 General Permit at this time, but the Stormwater Manager may choose to conduct wet weather sampling if they suspect a discharge occurs only during wet weather (such as may be the case for failed septic systems).

5.5 Ditch Inspections

The 2022 MS4 General Permit does not require ditch inspections be completed. However, historically, the Town hired interns to conduct roadside cleanups of litter, inspections will be completed to assess if any potential illicit discharges are available. The Town typically conducts these inspections annually in the spring, however, COVID-19 pandemic prevented it from occurring in 2020 and may restrict the ability of the Town to continue this program in the future. The ditch inspections are completed either using a paper form or a mobile device that is linked to the Town's GIS. The data collected will be consistent with the information contained in Attachment C. The Town will generally inspect ditches as follows:

- Field inspection will be performed during periods of dry weather when possible.
- Inspections will be performed during periods low flow where field inspections may be performed in a safe and efficient manner;
- Inspections will be performed during periods of no snow cover and prior to the growth of ditch vegetation such that potential outfalls may be easily spotted;
- Evidence of maintenance needs or potential illicit discharges will be documented in the QAlert system.

- Resolution of potential illicit discharges will be summarized in the IDDE Tracking Sheet (See section 8.0).

5.6 Septic System Inspections

During the previous permit cycle, the Town conducted an assessment and drive by inspections of septic systems in the Urbanized Area. None of the systems were observed to have evidence of leakage or failure. Because this Plan did not yield useful information on septic system failures, it is no longer being conducted.

5.7 Interconnections with Other Entities

The Town's MS4 area borders the town of Kittery, Maine which is also regulated by the MS4 General Permit. Some of the roadways in Town are maintained in the summer by the Maine DOT and are therefore not part of the Town's MS4 system. In addition, the Maine Turnpike passes through the regulated area of Town. Both the DOT and MTA are regulated by a Transportation MS4 General Permit.

Because there are a few MS4 interconnections with MTA, DOT and the Town of Kittery, it may be necessary to conduct cooperative investigations with other MS4s or to inform them of issues associated with the Town's infrastructure.

The Town has notified its interconnected MS4s of the interconnections, and has provided notification of who to contact in the event of an emergency as documented in Attachment E.

6.0 PROCEDURES TO INVESTIGATE ILLICIT DISCHARGES

Investigations of illicit discharge issues are conducted by the Stormwater Manager with assistance from the Public Works Department, a third-party contractor, or York Sewer District when necessary. The Town relies on visual observations of the location where the illicit discharge was reported as a first step in identifying the source of the illicit discharge. If the evidence of the illicit discharge is still present in the initial structure or location where it was reported, the Town uses their knowledge of the infrastructure routing to systematically inspect other structures upstream of the initial location until either the evidence of the illicit discharge is no longer present, or until they locate a potential source of the illicit discharge.

For example, if evidence of gray water was observed during catch basin cleaning of a separated storm drain system, the Stormwater Manager would inspect drain manholes and/or catch basins upstream of the initial observation until they could isolate one or more locations from which the gray water was likely emanating.

In the event visual observations of the structures cannot identify the source of an illicit discharge, the Stormwater Manager may employ televising, systematic dye testing, or smoke testing to identify the source. The Stormwater Manager could conduct dye testing but would need to hire a third-party contractor for smoke testing. The York Sewer Department and Public Works Department have cameras which could be used for televising.

7.0 PROCEDURES TO REMOVE ILLICIT DISCHARGES

Once the potential source of the illicit discharge is identified, the Stormwater Manager would identify and contact the responsible party in order to initiate removal or discontinuation of the illicit discharge.

If the illicit discharge is caused by a private entity, the Stormwater Manager or other Code Enforcement officer could issue a Notice of Violation as authorized by the Non-Stormwater Discharge Ordinance (See section 3.0 of this IDDE Program). The Notice of Violation specifies the illicit discharge be removed within 60 days of its source identification but allows that if removal within 60 days is not possible, the responsible party must work with the Stormwater Manager to establish a schedule to remove the illicit discharge as expeditiously as possible.

If the illicit discharge is caused by the Town, the Stormwater Manager would contact the department most responsible and work with them to remove or discontinue the illicit discharge within 60 calendar days of identification of the source or would develop a schedule to expedite elimination.

If no source can be located, the area may be re-inspected to assess if the illicit discharge was a one-time occurrence, or is a repeating occurrence, whereupon additional investigations may be conducted.

8.0 PROCEDURES TO TRACK ILLICIT DISCHARGES

Each year, the town is required to complete an annual report summarizing the illicit discharge investigation activities completed under the MS4 Program. The Town will track the progress of investigating and removing illicit discharges using the QAlert system and an excel spreadsheet.

9.0 NOTIFICATIONS DURING WORKING AND NON-WORKING HOURS

The following describes the notifications completed during working and non-working hours to ensure that those who need to know about illicit discharges are notified:

- During working hours, if an illicit discharge is detected by a Town employee (either during a routine inspection or opportunistic inspection), the employee reports the information using the QAlert system as described in Section 5.0.

- Typically, illicit discharges identified by the public during non-working hours are routed to the police or fire department. For example, if a spill of petroleum or hazardous material were to occur, or a discovery of a sewage discharging from a pipe, the police and/or fire department would be notified and would respond to the incident using their emergency response procedures (which include proper notifications to Maine DEP if warranted). Police and Fire are trained in emergency response activities and address the issue and would contact the Stormwater Manager during normal business hours. The Stormwater Manager would review the site and activities completed with the response personnel and would ensure future follow up if needed.

10.0 RECORDS RETENTION

The Stormwater Manager will retain paper or electronic files of inspections and investigations including laboratory reports, for a minimum of three years after expiration of the MS4 General Permit Term. For the 2013 – 2022 General Permit, reports may be discarded June 30, 2025.

11.0 REFERENCES

CWP and Robert Pitt 2004. *Illicit Discharge Detection and Elimination Manual* – A Guidance Manual for Program Development and Technical Assessments. October 2004 Available: http://cfpub1.epa.gov/npdes/stormwater/idde.cfm

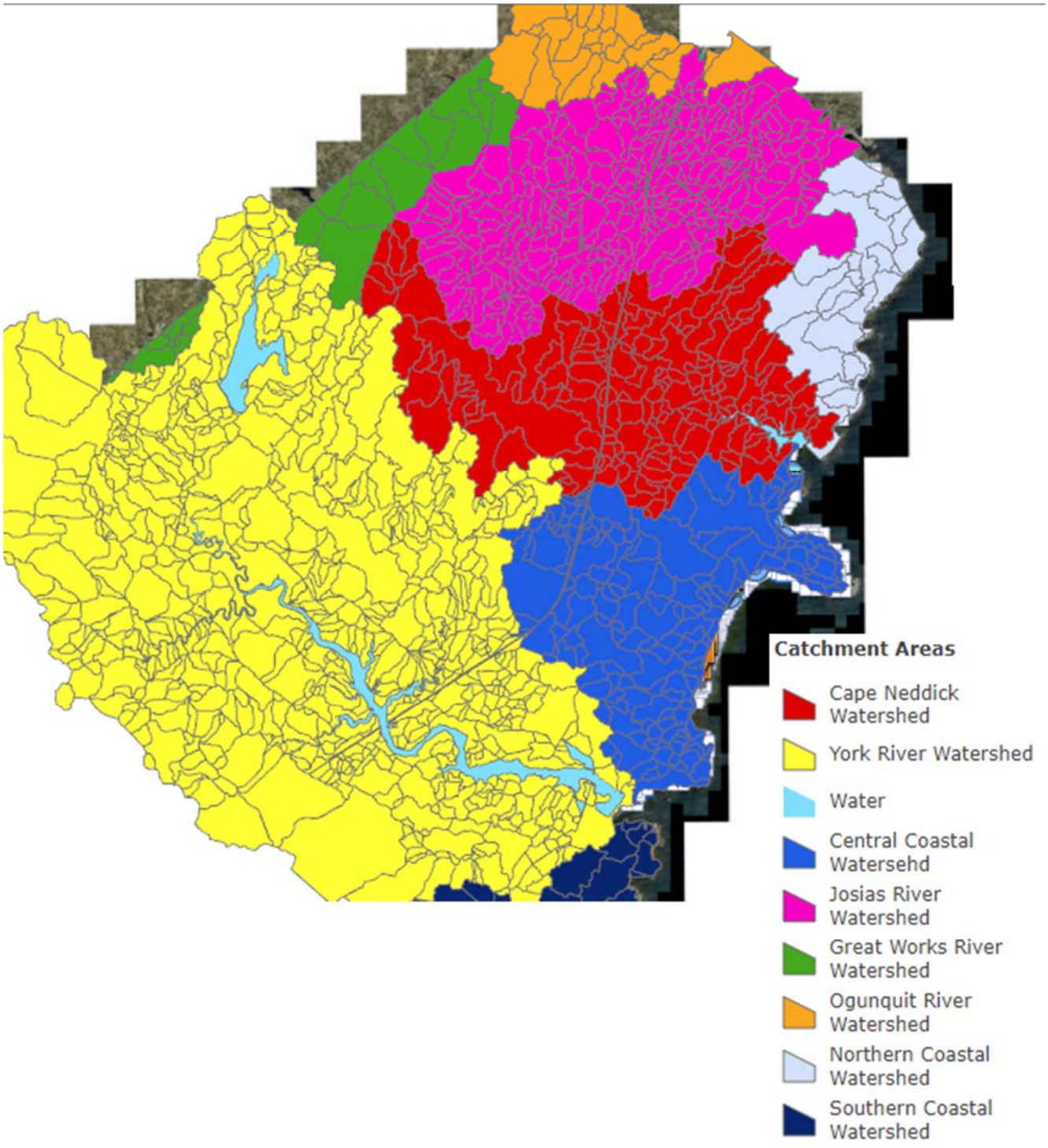
Aquarion Engineering Services and Casco Bay Estuary Partnership. *Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine.* Available: http://www.thinkbluemaine.org/docs/index.htm

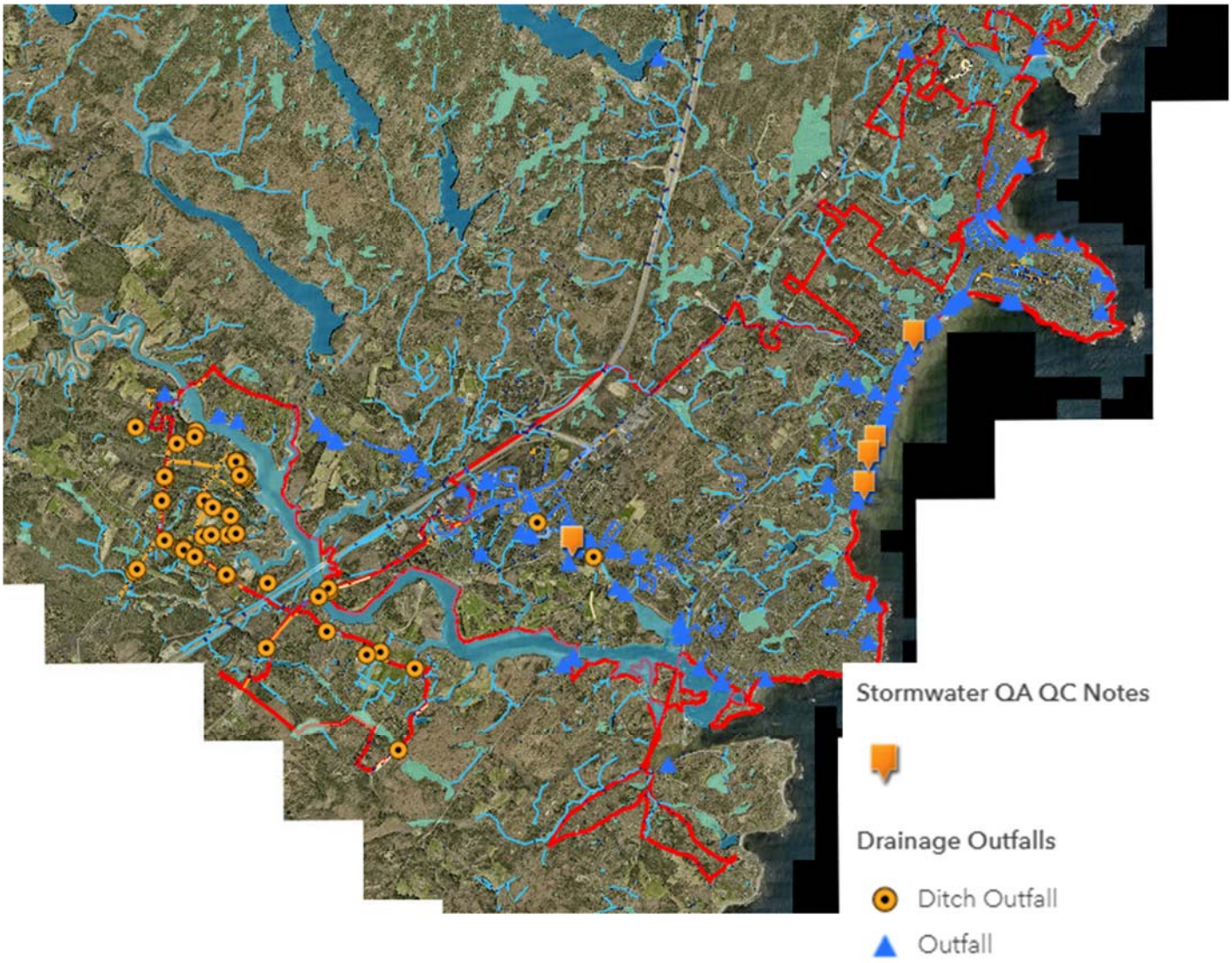
CWP and Robert Pitt 2011 Illicit Discharge Detection and Tracking Guide Available: http://www.cwp.org/2013-04-05-16-15-03/idde

USEPA New England Bacterial Source Tracking Protocol 2012. Provided by USEPA to Integrated Environmental Engineering. Available at: https://www3.epa.gov/region1/npdes/stormwater/ma/2014AppendixI.pdf

ATTACHMENT A

WATERSHED MAP


Catchment Areas
Cape Neddick Watershed
York River Watershed
Water
Central Coastal Watersehd
Josias River Watershed
Great Works River Watershed
Ogunquit River Watershed
Northern Coastal Watershed
Southern Coastal Watershed


Stormwater QA QC Notes
Drainage Outfalls
Ditch Outfall
Outfall


GULL STREET
GELAN ROAD
YB102
YB101
YB100
YB318
YB106
YB315
YB312
YB319
YB109
YB104
YB316
YB308
YB107
YB108
YB317
YB327
YB111
YB112
YB314
YB326
YB113XX
YB115
YB200
YB114
YB201
YB119
YB117
YB328
YB118
YB200XX

ATTACHMENT B

RFP LANGUAGE TO ENSURE PROPER TRANSMITTAL OF GIS COMPATIBLE AS-BUILT INFRASTRUCTURE

Example paragraph for RFPs issued by York for As-built submittals of Town Infrastructure:

The following text should be added to any project that will result in stormwater or road infrastructure which is intended to be transferred to the Town for ownership and/or operation:

As part of the scope of services for design, as-built drawings are required to be prepared and submitted to the public works department within 6 months of project completion. The as-built drawings will be submitted electronically via email, on disk or usb drive in two formats:
Printable pdf files (Adobe Acrobat IX or newer) and
GIS compatible files georeferenced to Maine State Plane Coordinate System NAD 1983 HARN WEST FIPS 1802 in US feet. Alternate coordinate systems are allowed but must be explicitly specified in the electronic files and on the pdf files. The GIS compatible files will consist of the following geodatabase or shape files:

- *Point features that specify type of structure as catch basin (CB), drain manhole (DMH), inlet (In) or outlet (Out), where inlets and outlets are for pipes or culverts*
- *Line features that specify type of structure as pipe, or ditch*
- *Polygon features that specify type of structure as treatment, or drainage area, where the drainage area is identified as the drainage area for the outlet of any storm drain system or sub system to another property or water resource.*

Metadata shall be included for all files submitted.

ATTACHMENT C

INSPECTION FIELDS AND DOMAINS IN GIS

As an inspector is using the iPad or other electronic data collection device in the field, they tap on the structure or element they are inspecting and open a related table, showing the inspection fields and drop-down entries available. The following is a summary of the available fields associated with each type of inspection.

Those items in BOLD are required as part of the MS4 General Permit, however, not all fields and domains in the GIS are shown in the table below.

MS4 INSPECTION	**GIS FIELDS AND DOMAINS COMPLETED AS PART OF INSPECTION**
Catch Basins	**Feature ID – Auto populated (e.g., LR305)** **Date Inspected – manually selected** Accessible – Accessible, Buried, Not Found, Unopenable, Paved Over, or Not Accessible **Clean Status – Doesn't need cleaning, Cleaned, Needs Cleaning, Not Accessible for Cleaning, Not Accessible for Inspection** Condition – Excellent, Good, Fair, Poor, or Needs Attention **Flow – None, Minimal, Significant, Normal, Flooded, Empty** **Excess Sediment – Yes or No** **Depth of Sediment – manually entered in inches** **Pollution – None, Sewage, Odor, Pet Waste, Foam/Soap, Yard Waste, OilSheen, Cig. Butts, excess algae, discolor flow, or More Than One** **Cleaned Date – Manually selected** Follow-up – Yes or No Maintenance Needs – Replace Cover, Replace Filter, Repair Bricks, Stuck Cover, other Other – open text field Photos may be attached to inspection
Outfalls (ditch or piped)	**Feature ID – Auto populated** Pipe Opening Type – Outfall or Ditch Outfall Inspection Date - Manually selected Inspection Time - Manually selected Inspector – Selected from list **Precipitation In Past 3 days? – Yes or No** Precipitation (inches) – Manually entered Approximate Temp - Manually entered Wind Present – Yes or No Submerged – Yes or No **Pipe Material – RCP, PVC, CMP, Steel, HDPE, or Other** **Pipe Dimension 1 - Manually entered** Pipe Dimension 2 - Manually entered **Open Drain – Concrete, Earthen, Rip Rap, or Other (used for ditches)** **Debris Foam – Yes or No** **Debris Scum– Yes or No** **Debris Oil /film – Yes or No** **Debris Vegetative Mat – Yes or No (counts as excess algae)**

MS4 INSPECTION	GIS FIELDS AND DOMAINS COMPLETED AS PART OF INSPECTION
	Debris Sewage Solids – Yes or No **Odor – None, Musty, or Sewerage** **Water Clarity – Clear, Cloudy, or Opaque** **Pipe Flow – None, Trickly, Steady, or ¼ pipe or More (field is completed for ditch inspections also, and may be re-named to Flow in future GIS iterations)** Seepage Flow – None, Trickly, Steady, or ¼ pipe or More **FlowSample Date - Yes or No (appears only if Pipe or Seepage Flow is present)** **Flow Color – No flow, Clear, Orange, Brown, Black, or Green** Sediment – Open, ¼ full, ½ full, ¾ full, or plugged Structure Condition – Excellent, Good, Fair, Poor, or Needs Attention Litter Present – Yes or No Yard Waste Present – Yes or No Follow-up – Yes or No Comments – open text field Photos may be attached to inspection Receiving watersheds (representative of smallest named water body and area) are identified as part of the spatial component of the outfall feature.
Ditches	**Ditch ID – Auto populated** **Inspection Date - Manually selected** Inspection Time - Manually selected Inspector – Selected from list **Precipitation In Past 3 days – Yes or No** Precipitation (inches) – Manually entered Approximate Temp - Manually entered Wind Present – Yes or No Trash/Litter Present – Yes or No Yard Waste Present – Yes or No **Debris/Pollution types – Foam, Floating Green Scum, Oil/Film, Vegetative Mat, Sewage Solids, or None** Odor – None/Natural, Musty, or Sewerage/Septic Standing Water – Yes or No Water Clarity – Clear, Cloudy, Opaque or Not applicable Water Color –Clear, Orange, Brown, Black, or Green Inlet Condition - Free of Obstructions, Stable, or Unstable Outlet Condition – Free of Obstructions, Stable, Unstable, or Obstructed Sediment Accumulation – Depth less than 2 inches, Depth greater than 2 inches, Plugged with Sediment, or Natural Structural Condition – stable, unstable, woody vegetation present, or riprap displaced Vegetation Coverage – Grass greater than 90%, 10% or Greater Bare Soil, Grass, or Natural Vegetation height – Less than 3-inches, 3-6 inches, 6-12 inches, or Excessively Tall

MS4 INSPECTION	GIS FIELDS AND DOMAINS COMPLETED AS PART OF INSPECTION
	Vegetation type – Normal Grass, Invasive, Poisonous, Weeds, Woody, or Natural **Erosion/Scouring - Yes or No** Follow-up – Yes or No Follow-up Reason - open text field Comments – open text field Potential Source/Action Taken – open text field Photos may be attached to inspection

ATTACHMENT D

QUALITY ASSURANCE PROJECT PLAN

Stormwater Monitoring Quality Assurance Project Plan Template

1.0 Background and Scope

In Maine, there are 30 municipalities (permittees) regulated by the 2022 Maine General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4 General Permit). The MS4 General Permit requires that the municipalities conduct dry weather inspections on 100% of their outfalls during the 5-year term of the MS4 General Permit.

Under most conditions, if an outfall is observed to have dry weather flow, monitoring must be conducted to assess whether there is an illicit discharge associated with the flow. (Part IV(C)(3)(e)(vi) of the MS4 General Permit contains a few conditions under which flowing outfalls do not need to be monitored.)

The following monitoring needs to be conducted whether or not the outfall's dry weather flow exhibits evidence of an illicit discharge:

- E. coli, enterococci, total fecal coliform or human bacteroides;
- Ammonia, total residual chlorine, temperature, and conductivity; and
- Optical enhancers or surfactants.

The objective of the monitoring is to collect data that can be used to determine if there is an illicit discharge present in the flow, or if the flow is from uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

> Illicit Discharge means any discharge to a regulated MS4 system that is not composed entirely of stormwater other than:
> - discharges authorized pursuant to another permit issued pursuant to 38 M.R.S. §413;
> - uncontaminated groundwater;
> - water from a natural resource [such as a wetland]; or
> - other Allowable Non-Stormwater Discharges identified in Part IV(C)(3)(h) of the MS4 General Permit.

The purpose of this Quality Assurance Project Plan (QAPP) is to provide sampling personnel information that will assist them in collecting samples and analyzing the samples using field equipment/test kit(s) and/or laboratories in a manner that ensures sufficient accuracy and precision so that sampling personnel and regulators can be confident there is or is not an illicit discharge present in dry weather flow from an outfall. This QAPP provides information on several field equipment/test kit(s) and analytical methods available to permittees that can be used to comply with the requirements for Dry Weather Outfall Monitoring.

Each municipality is required by the MS4 General Permit to prepare a written Illicit Discharge Detection and Elimination (IDDE) Plan. This QAPP has been developed to be an attachment to a municipality's IDDE Plan, and therefore does not contain all of the IDDE requirements associated with the MS4 General Permit. For example, some communities are conducting outfall inspections more frequently than once every 5 years. The IDDE Plan should be consulted to determine the municipality's frequency of inspections. In addition, if there is evidence of an illicit discharge, the municipality must conduct additional investigations to identify the source and work with responsible parties to remove the source. The IDDE Plan describes the processes and procedures specific to a municipality for the subsequent investigations.

2.0 Sampling Procedures

Samples are required to be collected at outfalls that exhibit dry weather flow (defined as flow after there has been no precipitation greater than ¼ inch for 72 hours, and no melt water from snow or ice).

Personnel should be prepared to collect samples during any outfall inspection, because dry weather flow is sometimes intermittent, and if personnel need to return to the site later in the same day, or several days later, the dry weather flow may no longer be present.
Table 1 contains a list of equipment that should be prepared and available in order to conduct dry weather monitoring.

Samples will be collected from a flowing source only (not from stagnant water), and where the pipe outlet has at least 1 or 2 inches of free-flowing drop before any standing water or pool below it. Stagnant water should not be sampled unless the municipality deems it necessary for some reason.

This outfall, though in poor condition because it is cantilevered, provides a good opportunity for a clean catch of its discharge.

This outfall is partially submerged and a clean catch of its discharge is not possible. If tidal influences are strong, wait until low tide to sample. Additional options include: sampling upstream structures or using sand bags around the outfall to prevent contamination from backflow.

Table 1 provides a list of equipment that should be gathered and available for use in the event dry weather outfall monitoring needs to be conducted.

Table 1 Field Equipment for Monitoring

1 Gallon of Distilled or de-ionized water for rinsing
1 Roll Paper towels
3-5 clean plastic 250 ml beakers for water sample collection in Baggie marked "Clean" or disposable "whirl bags"
Garbage bags
1 long sampling pole and or sampling pump and tubing
Equipment to remove and access catch basin covers if needed (pull, hammer, crowbar)
Field equipment/test kits (see Table 2) and bottles for any laboratory samples or off-site field test kits. Ensure field test kits reagents have not expired typically keep bottles for 3-5 samples available
Non-latex gloves
Box of 1 gallon plastic bags
Cooler with ice
Camera or phone
Safety Vest
Steel toed boots, waterproof
scissors
Sun screen and bug spray
Clip board
3-5 Field Data Sheets (See Addendum 1)
Chain of Custody (Addendum 3)
Sharpies and water-proof pens
Packing tape and Duct tape
Sheet of blank labels for bottles
First aid kit
Small white board with pen to mark outfall ID, date, and time in photo

For each outfall sampled, a Field Data Sheet will be used to document the date, time, and location of sample(s) collected, weather conditions, any general observations related to the tests being performed, and results of any parameters analyzed using field equipment or test kits. Note that the Field Data Sheet has a place to document sample observations including odor, color, turbidity, presence of algae, etc. The observations can be documented in this location instead of, or in addition to the observations made during the normal outfall inspection (which should be conducted in accordance with the MS4's IDDE Plan or SOP).

Sample bottles that will be taken away from the sampling site for analysis will be labelled with the date, time and sample location as well as the name of the sampler. Example labels are provided in Addendum 1 along with an example field data collection sheet.

When using a third-party laboratory for any off-site analysis, sample bottles should be obtained before the sampling event. Coordination with the laboratory is also recommended to ensure that sample hold times and preservation requirements are being met. If samples are being collected on a Friday, some laboratories need prior notice to meet short hold times. Analytical methods, hold times and other pertinent information is described in Section 3 of this QAPP.

After sampling events, any reusable sample collection containers will be cleaned with soap and water or trisodium phosphate and water. Cleaning will be completed in a location where wash

water can be discharged to a licensed wastewater treatment plant, sanitary sewer, or septic system.

3.0 Analyses and Reporting limits

The MS4 General Permit does not require samples to be analyzed using Clean Water Act (CWA) Methods published in 40 Code of Federal Regulations Chapter 136. The use of field equipment/ test kit(s) and laboratories are both allowed. The MS4 General Permit does not require samples to be analyzed by a laboratory that is certified by the Maine DEP. However, this QAPP specifies that when a commercial laboratory is used for a CWA method, it will be certified by the Maine DEP for the CWA method specified.

Use of a certified laboratory is specified in this QAPP because the data generated by a certified lab would be more likely to stand up in a court of law than data generated by a non-certified lab.

A list of commercial certified laboratories is available on the Maine DEP website at: https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml . Note also that many Wastewater Treatment Plants conduct bacteria analysis for operational purposes. If there is a Wastewater Treatment Plant in the area, it can also be used for the bacteria screening.

This QAPP does not specify CWA methods or Maine DEP certification for use of field equipment/test kit(s).

Table 2 provides information related to sampling parameters, analysis methods, and sample preservation and holding times that may be used during dry weather outfall monitoring. Analysis methods specified in **Table 2** include CWA methods, field equipment, and test kits, where applicable. **Table 2** also provides information on when a given CWA Method, Field Equipment, or Test Kit might be preferable if there are multiple options for a given parameter.

Prior to sampling, the sampler and Stormwater Manager or Coordinator will determine what analysis method (CWA Method, Field Equipment, or Test Kit) will be used.

User manual(s) and safety data sheets (SDS) for field equipment and/or test kit(s) that will be utilized for dry weather monitoring are included as Addendum 4 to this QAPP, or may be kept in a separate electronic or paper location as long as they are easily accessible to the field personnel who will be conducting the monitoring.

The comments in Table 2 show some of the methods and vendors the Town of York prefers to use, but others may be used if deemed needed for a given situation.

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Bacteria - select one or more based on discharge environment	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Bacteria - E. coli	SM 9223 B (IDEXX Colilert Quanti-Tray) EPA 1603 (membrane filtration, MF) Or SM 9221 B (Most probable number, MPN)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to freshwater (with ammonia and either optical enhancers or surfactants) **Town of York typically runs this method as a screening tool at the York Sewer District lab, then runs another lab analysis if concentrations are above the Thresholds for investigation identified in Table 3.**
Bacteria - enterococcus	SM 9230 B, C or D, (MPN including IDEXX Enterolert, or MF) EPA 1600 (MF)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to salt water (with ammonia and either optical enhancers or surfactants). **Town of York typically runs this method as a screening tool at the York Sewer District lab, then runs another lab analysis if concentrations are above the Thresholds for investigation identified in Table 3.**
Bacteria – Fecal Coliform	SM 9222 D (MF CFU/100ml) Or SM 9221 C, E (Multitube MPN/100ml)	Ice	To lab within 6 hours Analyze within 2 hours of receipt	120 ml or 250 ml plastic sterile bottle with lid from lab	Use for discharges to salt or freshwater (with ammonia and either optical enhancers or surfactants)
Bacteria – Human Bacteroides	Labs: EMSL (NJ), Microbial Insights (TN) or Source Molecular (FL) Or Dr. Steve Jones, UNH	Ice	To lab within 24 hours Analyze within 48 hours	1000 ml plastic bottle with sodium thiosulfate from lab (with insulated shipping box)	Use for discharges to salt or freshwater (with ammonia and either optical enhancers or surfactants). Not a CWA method, so Maine Laboratory certification not required. **Town prefers this method and uses EMSL. 843-628-3132 (Jay Rucker is contact as of 2/2021)**

Table 2 Sampling Parameters, Analysis Methods, and Sample Preservation and Holding Times

Ammonia (select one method)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Ammonia	Hach Ammonia Test Strips	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	**Town prefers this method**
Ammonia	Laboratory Method EPA 350.1/350.2	H_2SO_4 (pH <2) + Ice	28 days	250 ml plastic bottle from lab	
Ammonia	Hach DR300 Pocket Colorimeter Ammonia Nitrogen or LaMotte 3680-01 DC1200 Colorimeter test kit	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Reagent contains Mercury, Generates a Toxic Hazardous Waste (D009) instructional video (10 minutes): https://www.youtube.com/watch?v=hFiEEEAmWFo
Total Residual Chlorine (select one method)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Chlorine	Field kit – Hach Colorimeter II low range	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Instructional video available at: https://www.youtube.com/watch?v=WTTUD0Hq1Vw **Town prefers this method**
Chlorine	Industrial test Systems Ultra-Low Total Chlorine Test Strips and other mid range chlorine test strips	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	As of 6/2020, USEPA had not used Ultra low chlorine test strips (0.2 to 0.5 mg/L). Informal review shows these should be used simultaneously with a mid range (0.5 to 10 mg/l) test strips to double check range.
Temperature and Conductivity (use both)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Temperature	Temperature/ Conductivity probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use to distinguish between groundwater and surface water.
Conductivity	Temperature/ Conductivity probe	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Use to distinguish between salt water and fresh water.

Optical Enhancers or Surfactants (select one)	CWA Method, Field Equipment, or Test Kit	Preservation	Holding time	Bottle needed	Notes on Use
Surfactants	SM5540C	Ice	To lab within 24 hours Analyze within 48 hours	500 ml plastic bottle from lab	Works on most soaps (laundry detergent, personal care products, dish soap).
Surfactants	CheMetrics K-9400 field test kit (see Maine DEP guidance on handling and disposal in **Addendum 2**)	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Works on most soaps (laundry detergent, personal care products, dish soap). Contains alcohol and chloroform. Generates a Flammable (D001) and Toxic (D022) Hazardous Waste. Do not use test kit in the field unless licensed to transport hazardous wastes. Instructional Video available at: https://www.youtube.com/watch?v=6vwiZgWqa04
Optical brighteners	VWR handheld UV lamp: UV-A: 360-365 nm, model number 89131-488	None	Analyze within 7 days	Unbleached cotton pad wetted with sample placed in sealed baggie	Works only on water with high to moderate laundry detergent. Provides only presence/absence. **Town prefers this method.**
Optical brighteners	Maine Healthy Beaches Fluorometer ($15,000 unit)	None	Keep in a dark container, provide to MHB in 1-2 days, analyze within 7 days	Whirl bag or 100 ml plastic bottle.	Provides semi-quantitative numeric fluorescence of sample. Need to provide sample to MHB in bottle or whirl bag (in a box or cooler). One week hold time. Provide advanced notice to coordinate delivery to office. Organic matter or tannins, or color will interfere.
Other Optional Parameters	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Dissolved Oxygen	Hach DO Test kit Model OX-2P	None	Immediate (w/in 15 minutes) in Field	Field jar or beaker	Waters of the state have Dissolved Oxygen standards. This test can show whether outfall contributions are affecting Dissolved Oxygen content of receiving waters.
Total Phosphorus	EPA 365.3	Sulfuric Acid (pH <2) + Ice	28 days	250 ml glass bottle from lab.	Provides data regarding nutrient contributions to receiving waters which can originate from paved

		(4°C)			surfaces, fertilizers and eroding soils.
Other Optional Parameters (continued)	**CWA Method, Field Equipment, or Test Kit**	**Preservation**	**Holding time**	**Bottle needed**	**Notes on Use**
Personal Care Products	EPA 1694	Sulfuric Acid (pH <2) + Ice (4°C)	7 day to extraction 40 days after extraction	1000 ml amber jar	EPA Lab Chelmsford can run if capacity. Contact Todd Borci. Otherwise need to use a commercial laboratory. EPA recommends analyzing only for following subset: Caffeine, 1,7-DMX (metabolite of caffeine), Acetominophen, Carbamazepine (anti-depressant), Primidone (anti-epilepsy drug), Atenolol (high Blood pressure med), Cotinine (metabolite of nicotine), urobilin (by product of hemoglobin breakdowns), Azithromycin (antibiotic)
Total Suspended Solids	EPA 160.2 or SM2549D	Ice	7 days	1000 ml plastic bottle from lab	
Biochemical Oxygen Demand	EPA 405.1 or SM5210B	Ice	To lab within 24 hours, analyze within 48 hours		Provides general water quality information.
Total Petroleum Hydrocarbons DRO and GRO	SW 8015C	Ice	7 Days to extraction 40 days after extraction	500 ml amber glass jar and 3 40 ml VOA containers from lab with sulfuric acid	DRO is Diesel Range Organics (C10 to C28) GRO is Gasoline Range Organics (C5 to C10)
Nitrate + Nitrite	SM 4500 or EPA 300	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	125 ml plastic bottle from lab	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers, eroding soils or wastewaters.
Total Kjeldahl Nitrogen	SM 4500 or EPA 300	Sulfuric Acid (pH <2) + Ice (4°C)	28 days	1000 ml amber glass bottle from lab	Provides data regarding nutrient contributions to receiving waters which can originate from paved surfaces, fertilizers, eroding soils or wastewaters.

4.0 Quality Control

The following are the reporting limits required by the MS4 General Permit:

Ammonia: 0.5 mg/L
Surfactants: 0.25 mg/L
Total Residual Chlorine: 0.05 mg/L
E. coli bacteria 4 cfu/100 ml
Enterococcus 10 cfu/100 ml

To ensure the data collected meets the required reporting limits, the MS4 permittee will use either a Maine Certified Laboratory or one of the field equipment/test kit methods listed in **Table 2** to assess dry weather flow.

Each of the test kits listed in **Table 2** has a use range that is appropriate for the work being conducted, and which meets the MS4 required reporting limits.

Test kit reagents that have expired will not be used. Test kit and temperature/conductivity probes that have useful life limits will be replaced when they have reached the end of their useful lives.

Maine Certified Laboratories have standard reporting limits for the parameters that conform to the MS4 General Permit required reporting limits.

4.1 Equipment or Rinsate Blanks. For most instances, dedicated equipment and containers are used to collect samples, so that equipment and rinsate blanks are not required to be collected and analyzed. However, if equipment or collection containers are being used multiple times in the field for different sample locations, they should be cleaned in between samples, wash water should be collected in the field and disposed of when returning to office or lab spaces, and equipment or rinsate blanks should be collected and assessed. The USEPA Volunteer Monitor's Guide to Quality Assurance Project Plans has additional information on how to complete these tasks (EPA Document 841-B-96-003).

5.0 Field Data Sheets and Chain of Custody

As described in Sampling Procedures, Field Data Sheets will be used to document sample collection. Field Data sheets will document the type of field equipment or test kit(s) used and results of any in-situ analysis. Example Field Data Sheets are provided in Addendum 1 to this QAPP.

Whenever samples will be sent to a laboratory for analysis, a Chain of Custody will be used to document sample collection dates, times, analytical methods requested, and custody of the sample from the time it was collected, until the time it was analyzed. Example Chains of Custody are provided in **Addendum 3** to this QAPP.

6.0 Data Reports

Field data collection sheets shall constitute data reports for analyses using field equipment or test kits.

Whenever samples are sent to a laboratory for analysis, data reports are provided by the laboratory showing the sample location, date and time of collection, results of the analysis, the reporting limit, the person who conducted the analysis, the analytical method used.

7.0 Data Review and Follow up

Once all data has been received, it will be reviewed by a Stormwater Manager or Coordinator. Data shall also be stored electronically or in paper format for at least 3 years following the expiration date of the MS4 General Permit, as required by the MS4 General Permit.

If the person collecting the sample is the Stormwater Manager or Coordinator, they may opt to have another municipal staff person review the data, or a Stormwater Manager or Coordinator from another municipality if they deem it necessary to assist in the overall investigation. Data should be reviewed within 2 weeks of receipt and additional investigations should be implemented to identify the source of any potential illicit discharge if any of the thresholds in **Table 3** are exceeded.

Table 3 Thresholds for Additional Investigation

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
E. coli	236 cfu/100 ml – discharges into freshwater rivers or streams	All classifications of flowing fresh surface water in Maine (AA, A, B and C) have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A fresh surface water is at risk of impairment if it is receiving significant discharges from human sources above this concentration.
E. coli	194 cfu/100 ml – discharges into freshwater ponds	Great Ponds and lakes less than 10 acres have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water of this type is at risk of impairment if it is receiving significant discharges from human sources above this concentration.
Enterococci	54 CFU/100 ml – discharges into saline/estuarine Class SA or SB	These waters have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water is at risk of impairment if it is receiving significant discharges from human sources above this concentration. (Note Maine Healthy Beaches threshold is 104 MPN/100 ml)
Enterococci	94 CFU/100 ml – discharges into saline/estuarine Class SC	These waters have a standard that no more than 10% of the samples may exceed this concentration in any 90 day interval. A water is at risk of impairment if it is receiving significant discharges from human sources above this concentration. (Note Maine Healthy Beaches threshold is 104 MPN/100 ml)
Fecal Coliform	61 cfu/100 ml (2 times 31 cfu/100 ml for MF) to 100 cfu/100ml	The low end of this threshold is two times the 90th percentile standards that DMR applies for approved (open) shellfish harvesting areas and is very conservative (90% of the samples collected from the area must be above these concentrations for the harvesting area to remain open and completely unrestricted for shellfish harvesting. See Addendum 2 for additional info from DMR)
Human Bacteroides	Any concentration may be indicative of human sewage, but MHB considers 4,200 col/100ml HB to be equivalent to the level of contamination that exceeds the EPA acceptable risk of gastrointestinal illness to swimmers. (Rothenheber and Jones, 2018 and Boehm, Soller and Shanks 2015)	Any concentration of human source of sewage should be investigated.
Ammonia	≥ 0.50 mg/L	This is the effective reporting limit of the Ammonia test strips and was taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Chlorine	≥ 0.05 mg/L	Limit of test kit and was taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.

Parameter	Threshold Level for Additional Investigation	Notes/Discussion
Surfactants	≥ 0.25 mg/L	Taken from USEPA Draft 2012 Bacteria Source Tracking Protocol.
Optical Brighteners	≥ 100 ug/L) (≥ 0.10 mg/L)	This is used by Maine Healthy Beaches as an actionable threshold. If using a handheld fluorometer, conduct further investigation if presence of optical brighteners is detected

MS4s should use the thresholds listed above and the following general guidance to make determinations whether an outfall requires additional investigation for illicit discharges:

Outfalls that have some visual evidence of an illicit discharge and exceed at least one of the above thresholds and should be investigated further using techniques described in the MS4s IDDE Plan.

Outfalls that do not have any visual evidence of an illicit discharge but exceed more than one of the above thresholds should be investigated further using techniques described in the MS4s IDDE Plan

As described in Section 1 of this QAPP, if the above thresholds are not exceeded, the MS4 may make the determination that the flow is from uncontaminated groundwater, water from a natural resource, or an allowable non-stormwater discharge.

Revisions:

1. Original document prepared for 2022 MS4 General Permit Submission to Maine DEP

Addenda

1. Example Field Data Collection Sheet and labels
2. References:
    a. E-mail on Surfactant field kit handling of residuals from DEP staff
    b. E-mail on Fecal Coliform thresholds from DMR listed in Table 3
3. Example Chains of Custody
4. User Manual(s) and Safety Data Sheets (SDS) for Field Equipment and/or Test Kit(s) (This is an optional addendum. The information must be located where field personnel can access electronically or in paper form, so this Addendum can be used as a place to describe where field personnel will find equipment, manuals and SDSs).

References:

Rothenheber and Jones 2018. *Enterococci Concentrations in a Coastal Ecosystem are a function of fecal source input*. Published in Applied Environmental Microbiology, July 13, 2018.

Boehm, Soller and Shanks 2015. *Human-Associated Fecal Quantitative Polymerase Chain Reaction Measurements and Simulated Risk of Gastrointestinal Illness in Recreational Waters Contaminated with Raw Sewage.* Published in Environmental Science and Technology Letters 2015, 2, 270-275.

Addendum 1
Example Field Data Collection Sheet and labels

Field Data Collection Sheet for Dry Weather Outfall Monitoring

Date		Project Name	
Time			
Sampler's Name		Project Location	
Weather:			
Sample Type:			
Sample Location/Sketch:			

Field Parameters to Monitor

Parameter	Result (units)	Equipment Used	Threshold triggering additional investigation (see QAPP)
Temperature (all flows)	C/F		No threshold. FYI: Temp. is dependent on season. Groundwater is typically 40-55 F. Surface water can be hotter or colder.
Conductivity (all flows)	µs		No threshold. FYI: Groundwater is typ. Less than 1000 µs. Freshwater can be as high as 2000 µs. Saltwater can be as high as 55,000 µs.
Ammonia (potential bacteria sources)	mg/L	Hach Test Strips	≥ 0.50 mg/L
Surfactants or Optical Brighteners (potential bacteria sources)			Surfactants ≥ 0.25 mg/L Optical Brighteners ≥ 100 ug/L or if present
Chlorine (potential chlorine sources)	mg/l	Hach Colorimeter II low range	≥ 0.05 mg/L (test kit limit)

Observations (unless already documented as part of outfall inspection: odor, color, turbidity, algae, etc):_____

Laboratory Analyses (see QAPP for thresholds)

Parameter	Method/ Lab Code	Comments
E. coli	SM 9223 B, EPA 1603, or SM 9221 B	For freshwaters
Enterococci	SM 9230 or EPA 1600	For marine/estuarine waters
Fecal Coliform	SM 9222 D or SM 9221 D, E	For fresh or marine/estuarine waters
Human Bacteriodes	qPCR	For fresh or marine/estuarine waters

Comments/Field Notes

This set of labels was designed to be used with Avery 5366 labels, but you can use any labels.

Sampler: _____ Date: _____
Time: _____ Field ID: _____

Sampler: _____ Date: _____
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Time: _____ Field ID: _____

Sampler: _____ Date: _____
Time: _____ Field ID: _____

Addendum 2
-Reference E-mails

Kristie Rabasca

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Thursday, October 31, 2019 4:46 PM
To: Kristie Rabasca; Wahle, Benjamin
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,
I did misunderstand the question. Unless there is a specific area of concern where we are collaborating on a special study with a town, we typically provide a yearly update for each station's geomean and P90 incorporating the most recent 30 sample scores. That annual trend is provided to towns so we are not usually contacting a town based on any one score to tell them that there might be a problem.

However- if trying to determine a trigger on a single sample, there is some subjectivity to the answer. I would suggest a value between 50-100 as a high value trigger. There is merit to your suggestion of using twice the 31 value as well since that is within that range. Often, our Scientists would use 100 as the high score value as their own flag to watch a station since an area that is already at risk of exceeding the approved standard based on the last 30 samples would likely go over a P90 of 31 with a 100 added. I think you would likely accomplish your goal by using any of the three values; 50, 62, or 100. I would recommend starting with 62 then re-evaluating after some data is built up to determine if that should be increased or decreased based on program needs.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Thursday, October 31, 2019 2:42 PM
To: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

H Bryant,
I do a lot of illicit discharge investigations with and for the municipalities. Maybe I did not phrase my question properly.

For a single sample, at what concentration would DMR say to a municipality: "we think there might be a problem here". Is that concentration the 90th percentile number? 31? Or twice that?

Or do you wait until you see the GM or P90 number get close to its threshold for multiple samples?

Kristie L. Rabasca, P.E.
207-415-5830 (cell)

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Thursday, October 31, 2019 2:33 PM

To: Kristie Rabasca <krabasca@integratedenv.com>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,
I would suspect DEP and possibly the municipality should be contacted for possible illicit discharges.

We use DMR water quality stations to classify growing area waters. As part of our program, we also conduct surveys of the shoreline where we look for malfunctioning septic systems and other pollution sources and sample the mouths of streams entering growing area waters; however, we do not conduct investigations to determine the sources of contamination. Generally, it is up to the municipality to investigate degrading water quality while sometimes DEP can provide some additional assistance. If there is an area where water quality was degrading we would provide the municipality the information we have if they wished to investigate. The municipality would likely need to do additional work to locate the source of contamination but the information you are describing would likely be valuable in their effort.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Wednesday, October 30, 2019 9:00 AM
To: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>; Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Thanks so much for this. We are using it because some communities will be sampling outfalls that are discharging into marine environments for fecal coliform as a screening tool when looking for illicit discharges. The MS4 General Permit requires that the communities regulated for their stormwater discharges do sampling whenever an outfall if flowing after three days of dry weather. We are telling them to notify DMR of the results, and wanted to have some guidelines for when they should be concerned. I know that your scores are very conservative because they are all about the FDA and ingestion of shellfish.

I have attached a QAPP that we are using and you will see the table in the back has a "threshold" for additional investigation if the town is monitoring for fecal coliform. Please note that the samples they are collecting are discharges from outfalls into the water body – not from the water body.

Would you investigate further if the thresholds for 90th percentile for open areas were exceeded? Or would you use 2x that? Or some other number.

Hopefully you understand my question….

Kristie L. Rabasca, P.E.
207-415-5830 (cell)

From: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Sent: Monday, October 28, 2019 10:16 AM
To: Wahle, Benjamin <Benjamin.Wahle@maine.gov>; Kristie Rabasca <krabasca@integratedenv.com>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Kristie,
This webpage explains the classifications.
https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/howclassified.html

The NSSP Model Ordinance dictates how we calculate water quality scores. A 90th percentile based on the most recent 30 samples providing a score of 31 or less is Approved, 32-163 is Restricted and above 163 is Prohibited. There is a link to the Model Ordinance on our website, if needed. It describes how to calculate scores for systematic random sampling using membrane filtration.
https://www.maine.gov/dmr/shellfish-sanitation-management/programs/growingareas/index.html

I have also attached a document summarizing what is in the Model Ordinance for calculating water quality station scores.

Bryant Lewis
ME Department of Marine Resources
Growing Area West Program Supervisor
194 McKown Point Road
West Boothbay Harbor, ME 04575
Tel: 207-633-9401
Cell: 207-215-4107

From: Wahle, Benjamin
Sent: Monday, October 28, 2019 9:28 AM
To: Kristie Rabasca <krabasca@integratedenv.com>
Cc: Lewis, Bryant J <Bryant.J.Lewis@maine.gov>
Subject: RE: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Hi Kristie,

I'm actually going to refer you to Bryant Lewis, who is the Western Region Growing Area Supervisor. He'll be better able to explain DMR's classification system.

-Ben

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Monday, October 28, 2019 8:03 AM
To: Wahle, Benjamin <Benjamin.Wahle@maine.gov>
Subject: simple summary of Fecal concentrations for open vs seasonal vs restricted vs prohibited?

Good Morning Ben,
I worked with you in Eliot and Cape – and am looking on your website for a simple summary of the P90 concentrations that trigger the various restrictions on shellfishing.

Does such an animal exist? If so, could you share it?

I am working on a QAPP for the stormwater folks and want to provide them with a reference that is accurate and truthed by DMR for when they are sampling outfalls near shellfishing areas.

Thanks for any help you can provide.

DMR uses a membrane filtration (MF) method for fecal coliform analysis using mTEC agar with a two-hour resuscitation step. The geometric mean and the 90th percentile are calculated on a minimum of the most recent 30 data points.

Geometric Mean (Geomean):

The geometric mean, or geomean, is a type of averaging calculation. Unlike a simple average or arithmetic mean, the geomean takes into account the way bacteria grow. During bacterial growth, each bacterium doubles and reproduces itself i.e. one bacterium becomes two, two bacteria become four, four become eight and so on. There are low values at first and the rate of growth increases as the number of colonies increases. This is called exponential growth (Figure 1). This growth pattern means a fecal coliform dataset may have a few high scores and many low scores. The calculation for the geometric mean takes exponential growth into account by transforming the data into logarithms, taking the mean and then converting the number back to a log base 10 number. For example, the arithmetic mean of a fecal coliform score of 300, 150, 23 and 2 CFU/100ml is 119 CFU/100ml. Calculating the geomean, the result is 38 CFU/100ml.

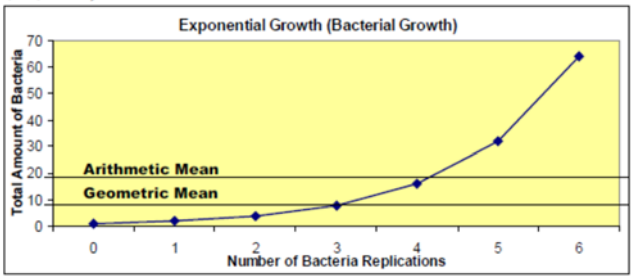
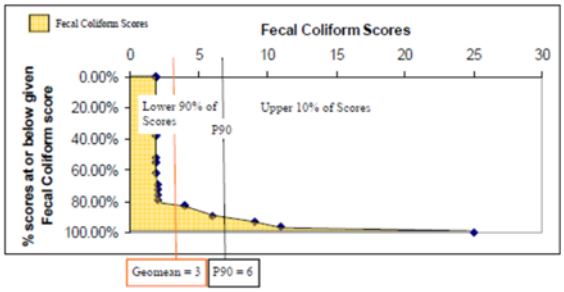


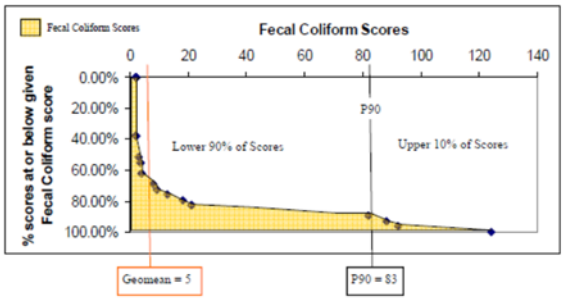
Figure 1. The graph illustrates exponential growth. The arithmetic mean for the scores is 18.1 while the geomean is 8.

90th Percentile (P90)

The other calculation used for shellfish growing area classification is the 90th percentile (P90). The P90 is the variability standard, meaning this value takes into account the variability of test readings. In any test measurement, successive readings of the same sample would produce slightly different scores each time due to precision of the equipment, human error, etc. This type of variability is a factor of the test method and equipment used and is true of all testing methods.

To account for the variability in the fecal coliform test, a standard has been established. Here again, since bacteria grows exponentially, the calculations are performed on a logarithmic scale. The P90 is based on the distribution of fecal coliform scores and means that 90% of scores are at are below the P90 and 10% scores are above (Figures 2a and 2b). As long as most of the other scores are low, a few high scores will not have a large impact on the P90 value. The P90 standard is the acknowledgment by the NSSP that a few high scores in data set may be due to the variability of the test method. If the area shows high fecal coliform scores intermittently due to pollution events such as rainfall, this may cause water quality to exceed the P90 standards because the shellfish are intermittently subject to polluted waters. For classification determinations, P90s are rounded to the nearest whole number. 0.1-0.49 are rounded down and 0.5-0.9 are rounded up to the next whole number.





Figures 2a and b. The lower 90% of the scores fall to the left of the P90 line and 10% of the scores fall to the right. 2a has a low P90 because there are many low scores and a few high scores. 2b has a larger number of high fecal coliform scores, so the P90 is shifted to the right. Although the geomean of 2b passes the approved standard, the area would not be classified as approved because the P90 score is above the threshold.

Fecal Coliform Standards by Shellfish Growing Area Classification Category

Shellfish Growing Area Classification	**Activity Allowed**	**Geometric mean FC/100ml**	**90th Percentile (P90) FC/100ml**
Approved	Harvesting allowed	≤ 14	≤ 31
Conditionally Approved	Harvesting allowed except during specified conditions	≤ 14 in open status	≤ 31 in open status
Restricted	Depuration harvesting or relay only	≤ 88 and >15	≤ 163 and >31
Conditionally Restricted	Depuration harvesting or relay allowed except during specified conditions	≤ 88 in open status	≤ 163 in open status
Prohibited	Aquaculture seed production only	>88	>163

Kristie Rabasca

From: Hudson, Michael S <Michael.S.Hudson@maine.gov>
Sent: Monday, October 7, 2019 11:51 AM
To: Kristie Rabasca
Cc: Plummer, Cherrie F; Poirier, Rhonda
Subject: FW: Proper handling and disposal of CheMetrics Surfactant field test kit residuals
Attachments: surfactants_CHEMetrics_k9400instructs.pdf; surfactants_CHEMetrics_k9400_SDSs.pdf; EIASOP-SWTestKits_REV1.pdf

Importance: High

In response to the questions posed regarding proper handling and disposal of CheMetrics Surfactant field test kit residuals:

1. Can the Towns mix the liquids from a. and b. in a single container for disposal as Doo1 and Do22 waste? Or do they need to keep them separate to dispose of them?
   Answer: Chloroform is miscible in alcohols such as n-propanol and is compatible. The Hazardous Waste Management Rules, 06-096 C.M.R. ch. 850 through 858, do not prohibit the mixing of compatible wastes. If mixed, the waste mixture should be coded as both D001 and D022. The town/generator could check with the licensed hazardous waste transporter it intends to use for the hazardous waste pick-up and disposal to determine if it is advisable or more cost effective to keep the wastes separate.

2. The n-propanol waste is super tough to get out of the vial – we pretty much just dispose of the whole vial. Is that okay? Or can we break the vial? And dispose of the empty glass as solid waste (as long as it is RCRA empty).
   Answer: The whole vials containing n-propanol can be disposed of as hazardous waste. If the generator choses to break the vial to dispose of the n-propanol as hazardous waste and the glass as a solid waste, then the generator must ensure the broken vials are RCRA-empty. Again, the town/generator could check with the licensed hazardous waste transporter it intends to use for the hazardous waste pick-up and disposal to determine if it is advisable or more cost effective to break and empty the vials to dispose of the glass and n-propanol separately. Of course, care and safety measures should be employed if breaking and handling glass vials.

3. Most of these towns are going to be SQGs (Maine Definition), and are going to be generating this waste while they are out in the field over a period of months. Then after each event, they are going to drive it back to the public works facility and set up a SQG haz waste storage area until they can get rid of it (either at HHWD collection, or have a specific pick up). They have 1 year to dispose of it. Have I missed any exemptions or special conditions for this? Is it okay that they are driving it around? Or should they be bringing the water samples back to public works and running the surfactant analysis on it at public works so they don't have to transport it. (its easier for them to run the sample right there while they are at the site).
   Answer: It is preferable for the town/generator to bring samples back from field sites to its Public Works to do the test so that hazardous waste generated by the tests does not have to be transported from field sites. Under the rules, the town/generator would need hazardous waste licenses to transport or accept the hazardous wastes from off-site. Towns should set up a hazardous waste collection container for the hazardous wastes from the tests, with an appropriate size container, labeled as "Hazardous Waste" with an accumulation start date. If the town's Public Works is a Small Quantity Generator (SQG), i.e. it generates for all its hazardous wastes in aggregate no more than 27 gallons/month and accumulates no more than 55 gallon of all of its hazardous waste in aggregate, then the town/generator could accumulate the waste indefinitely until the container of hazardous waste from tests is full at which point the town/generator would have 180 days to ship

via licensed hazardous waste transporter. Town/ Public Works should not dispose of these waste through the Household HW collection programs because they are not household exempt wastes.

4. We are going to do a training of the use of this kit on 10/17 in Portland. I would really like for attendees to be able to practice use of the kit at that training. Do I need to schedule with NRCC or Clean Harbors to come pick up the waste that day (as a licensed transporter), or could one of the communities transport it back to their public works facility for storage until later disposal (during HHWD)?
   Answer: Under the rules, the generator should arrange for waste pick-up at the site of generation. These hazardous wastes are not exempt under the household waste exclusion and are not acceptable at Household Hazardous Waste collections events.

The guidance above is based on the information provided below and the applicable rules, Hazardous Waste Management Rules, 06-096 C.M.R. ch. 850 through 858, without information on the number of test kits expected to be used, frequency of testing and volumes of anticipated waste accumulation If you have questions or would like to discuss the specifics, please feel free to contact me at Michael.s.hudson@maine.gov or 207-287-7884, or Cherrie Plummer of the Hazardous Waste Management Unit. Cherrie's contact is Cherrie.F.Plummer@maine.gov and 207-287-7882.

Michael S. Hudson, Supervisor, Hazardous Waste Management Unit
Maine Department of Environmental Protection
17 State House Station, Augusta, ME 04333-0017
Tel. 207-287-7884
www.maine.gov/dep

From: Poirier, Rhonda
Sent: Monday, October 07, 2019 9:37 AM
To: Hudson, Michael S <Michael.S.Hudson@maine.gov>
Subject: Proper handling and disposal of CheMetrics Surfactant field test kit residuals
Importance: High

Hi Mike,

The sampling she's describing is required by one of the permits in my stormwater program. She is giving a workshop on it on 10/17 and would like to talk to the proper DEP person before that, for planning purposes. Can you help her?

Thank you,
Rhonda

Rhonda Poirier
MEPDES Stormwater Program Manager
Bureau of Water Quality
Maine Department of Environmental Protection
207-592-6233
www.maine.gov/dep

From: Kristie Rabasca <krabasca@integratedenv.com>
Sent: Tuesday, October 01, 2019 4:02 PM
To: Poirier, Rhonda <Rhonda.Poirier@maine.gov>
Cc: Aimee Mountain (Aimee.Mountain@gza.com) <Aimee.Mountain@gza.com>; Damon Yakovleff <dyakovleff@cumberlandswcd.org>
Subject: Proper handling and disposal of CheMetrics Surfactant field test kit residuals

Hi Rhonda,
Thanks for taking my call.
I am developing a dry weather monitoring training session for the ISWG and SMSWG MS4s, and am developing a QAPP and some checklists.

We will need to use the CheMetrics K-9400 field test kit for surfactants. I have attached the instructions for the kit, and the Safety Data Sheets for the two reagents. Generally for each sample we will do the following:

1. Add 5 ml of water to a small plastic vial
2. Add 4ml of the double tipped reagent (SDS attached and it is flammable and contains 71% chloroform)
3. Shake
4. Use the 0.25 ml sealed glass ampule (which is 98% N-propanol) to draw the organic phase out of the plastic vial with the water and the first reagent.
5. Use colorimeter to check detergent concentration of sample.

So the two wastes we have when done are:

a. The mixture of the 5 ml water and the 4 ml 71% chloroform (which is still flammable) in the plastic vial (minus about 1 ml extracted into the n-propanol vial)
b. About 1 mil of the n-propanol and the chloroform organic phase in a very small glass ampule.

I am requesting the EPA SOP on this – but I do not think it has the detail I want.

When I have used this in the past, I have given it to the municipality where it was generated and told them it was a Doo1 Flammable and D022 Tox-chloroform waste, and they hand it to clean harbors during household hazardous waste day.

We are going to have a lot more people generating this waste – using these kits, and we need to handle it properly. As we provide them with guidance, we want to make sure it is right.

My questions are:

1. Can the Towns mix the liquids from a. and b. in a single container for disposal as Doo1 and Do22 waste? Or do they need to keep them separate to dispose of them?
2. The n-propanol waste is super tough to get out of the vial – we pretty much just dispose of the whole vial. Is that okay? Or can we break the vial? And dispose of the empty glass as solid waste (as long as it is RCRA empty)
3. Most of these towns are going to be SQGs (Maine Definition), and are going to be generating this waste while they are out in the field over a period of months. Then after each event, they are going to drive it back to the public works facility and set up a SQG haz waste storage area until they can get rid of it (either at HHWD collection, or have a specific pick up). They have 1 year to dispose of it. Have I missed any exemptions or special conditions for this? Is it okay that they are driving it around? Or should they be bringing the water samples back to public works and running the surfactant analysis on it at public works so they don't have to transport it. (its easier for them to run the sample right there while they are at the site).
4. We are going to do a training of the use of this kit on 10/17 in Portland. I would really like for attendees to be able to practice use of the kit at that training. Do I need to schedule with NRCC or Clean Harbors to come pick up the waste that day (as a licensed transporter), or could one of the communities transport it back to their public works facility for storage until later disposal (during HHWD)?

So many questions…. Perhaps I could talk with someone at Haz waste…. Thanks for any help you can provide.

Kristie L. Rabasca, P.E
Integrated Environmental Engineering, Inc.
12 Farms Edge Road
Cape Elizabeth, ME 04170
207-415-5830

Addendum 3
Example Chains of Custody

Laboratory Sample Chain of Custody

Client:	Contact:	Phone #:	Email
Address:	City:	State:	Zip Code:
Purchase Order #:	Proj. Name/No.:		Quote #:
Bill (if different than above):	Address:		
Sampler (Print/Sign):			Copies To:

LAB USE ONLY Work Order #:

Remarks:

Shipping Info: FEDEX UPS CLIENT

Airbill No:

Temp C Temp Blank Intact Not Intact

*	Sample Description	Date/Time Collected	Matrix water/soil /other	No. of Containers	Analysis and Container Type Preservatives									
					Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N	Filt. Y / N

COMMENTS:

Relinquished By:	Date/Time	Received By:	Relinquished By:	Date/Time	Received By:
Relinquished By:	Date/Time	Received By:	Relinquished By:	Date/Time	Received By:

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

EMSL Order Number (*Lab Use Only*):

Company :		**EMSL-Bill to:** ☐ Same ☐ Different **If Bill to is Different please note in Comments**** *Third Party Billing requires written authorization from third party*	
Street:			
City:	**State/Province:**	**Zip/Postal Code:**	**Country:**
Report To (Name):		**Fax #:**	
Telephone #:		**E-mail Address:**	
Project Name/ Number:			
Please Provide Results: ☐ **Fax** ☐ **E-mail**	**PO#**	**State Samples Taken:**	

Turnaround Time (TAT) Options* - Please Check

☐ **3 Hour**	☐ **6 Hour**	☐ **24 Hour**	☐ **48 Hour**	☐ **72 Hour**	☐ **96 Hour**	☐ **1 Week**	☐ **2 Week**

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements.*

Fungi	**Bacteria**	**Insects**
☐ **ERMI Panel (M180)** *Dust Only*	☐ **Human *Bacteroides* (M199)**	☐ **Bed Bug (*Cimex lectularius*) (M146)**
☐ **EPA 36 Panel (M233)** *Air, Swab*	☐ **Total *Bacteroides* (M095)**	☐ **Tick - *Anaplasma phagocytophilum* Anaplasmosis (M261)**
☐ **Water Damage 20 Panel (M181)**	☐ ***E. coli* O157:H7 (M140)**	☐ **Tick - *Babesia microti* Babesiosis (M260)**
☐ **Wood Rot Fungi 10 Panel (M232)**	☐ ***E. coli* (M200)**	☐ **Tick - *Borrelia burgdorferi* Lyme disease (M196)**
☐ ***Aspergillus* 15 Panel (M186)**	☐ **Total *Enterococcus* (M096)**	**Other**
☐ ***Aspergillus* 6 Panel (M188)**	☐ ***Helicobacter pylori* (M207)**	☐ ***Acanthamoeba* spp. (M147)**
☐ ***Penicillium* 13 Panel (M189)**	☐ ***Legionella pneumophila* (M103)**	☐ ***Cryptosporidium* spp. (M237)**
☐ **Customized Fungi Panel (M100)**	☐ ***Legionella* 4 species-EPA (M162)**	☐ ***Giardia* spp. (M149)**
☐ ***Penicillium* Mycotoxin 9 Panel (M190)**	☐ ***Legionella* Broad Screen (M163)**	☐ **Enterovirus RT-PCR (M142)**
Birds, Animal Droppings	☐ **MRSA (M203)**	☐ **Food Authentication (F130)**
☐ ***Chlamydophila psittaci* (M234)**	☐ ***Mycobacterium avium* (M144)**	☐ **GMO Analysis (F131)**
☐ ***Cryptococcus neoformans* (M143)**	☐ ***Mycobacterium tuberculosis* (M159)**	☐ **DNA Barcode Analysis (M195)**
☐ ***Histoplasma capsulatum* (M208)**	☐ ***Pseudomonas aeruginosa***	☐ **DNA Sequencing Fungi/Bacteria Isolates (M192)**
☐ **Raccoon Roundworm (M236)**	☐ ***Salmonella* spp. (M141)**	☐ **Special Request:**
☐ **Rodent (Mouse, Rat) Dropping (M271)**	☐ ***Shigella* spp. (F122)**	

Sample #	**Sample Location**	**Sample Type**	**Test Code**	**Volume/Area**	**Date/Time Collected**

Client Sample # (s): -	**Total # of Samples:**	
Relinquished (Client):	**Date:**	**Time:**
Received (Lab):	**Date:**	**Time:**
Comments:		

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

EMSL ANALYTICAL, INC.
LABORATORY•PRODUCTS•TRAINING

EMSL Order Number (*Lab Use Only*):

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX:(856) 786-0262

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected

****Comments/Special Instructions**

Page ______ of ______ pages

Addendum 4
User Manual(s) and Safety Data Sheets (SDS) for Field Equipment and/or Test Kit(s)
(This is an optional addendum. The information must be located where field personnel can access electronically or in paper form, so this Addendum can be used as a place to describe where field personnel will find equipment, manuals and SDSs).

ATTACHMENT E

COORDINATION LETTERS WITH INTERCONNECTED MS4S

Interconnected MS4	Date of update	Contact	Phone	E-mail
Maine DOT	3/3/2021	Kerem Gungor	207-592-3489	Kerem.Gungor@maine.gov
Town of Kittery	3/3/2021	Jessa Kellogg	207-475-1321	jkellogg@kittteryme.org
Maine Turnpike Authority	3/3/2021	Sean Donohue	207-232-7130 (o) 207-232-7130 (c)	sdonohue@maineturnpike.com

Kristie Rabasca

From: Leslie Hinz <lhinz@yorkmaine.org>
Sent: Tuesday, March 2, 2021 9:22 AM
To: Gungor, Kerem; sdonohue@maineturnpike.com; Aimee Mountain; Jessa Kellogg
Cc: Kristie Rabasca
Subject: MS4

Good morning,

The Town of York is regulated by the 2013 Maine General Permit for the Discharge of Stormwater from our Municipal Separate Storm Sewer System (MS4). Our mapping shows that we have cross connections (some of your MS4 system flows into ours and/or some of our MS4 system flows into yours).

With this letter we are acknowledging that you will notify us of any illicit discharges or spills in your MS4 that could affect our MS4. We will also notify you of any illicit discharges in our MS4 that may affect your MS4 system.

If you have any MS4 related issues, please contact me at (207) 363-1002 (office) or (207) 351-7795 (cell) during regular business hours. In the event of an emergency after hours, please contact 911 who will relay any pertinent information to me.

Also, the Town intends to apply for coverage under the 2022 MS4 General Permit, and as such is preparing their Stormwater Management Plan and Illicit Discharge Detection and Elimination Plan. This letter constitutes notice that we are applying for continued coverage, and we will be providing formal public notice in March 2021.

Thank you for your consideration in this matter.

Regards,

Leslie Hinz|*Stormwater Manager|Asst CEO*
Town of York
186 York Street|York|ME|03909

phone: 207-363-1002
fax: 207-363-1019
email: lhinz@yorkmaine.org

APPENDIX F

CONSTRUCTION INSPECTION FORMS

Construction Inspection Form for Sediment and Erosion Control

Site Name: Map/Lot:	Date of Inspection:
Inspector:	Inspection Time: AM/PM
Pictures Taken:	Weather:
Type of Inspection: Initial / Return / Winter Stabilization / Final Stabilization / Complaint / Other _____	

Inspection Parameters		**Comments/Follow up Date**
Description and estimate of construction area that is disturbed:		
Does contractor have Erosion and Sediment Control Plan, drawings, and inspection log on site?	**Yes / No / NA**	
Is the contractor or a third-party inspector conducting inspections after rain events and weekly as required by the Erosion and Sediment Control Plan for the site?	**Yes / No / NA**	
Is the construction entrance clean with no track out of sediment?	**Yes / No**	
Is waste properly managed (concrete washout disposed of properly, no liquids in waste container, waste containers closed)?	**Yes / No**	
Are there any petroleum or hazardous materials on site, and if so, are there spill controls in place?	**Yes / No**	
Review the site plan for sediment and erosion control requirements. Select "Pass" if structures are properly installed and functioning as required. Select "Fail" if contractor needs to make corrections or repairs and describe briefly repairs needed. **Select "N/A" for "Not Applicable" if they do not apply at the site.**		
Catch Basin Protection	**Pass / Fail / NA**	
Silt Fence /Hay bales	**Pass / Fail / NA**	
Erosion Control Berm or Sock	**Pass / Fail / NA**	
Dust Control	**Pass / Fail / NA**	
Dewatering	**Pass / Fail / NA**	
Other:_____	**Pass / Fail / NA**	
Any Areas of Repeated Non-compliance that require MDEP Notification?	**Yes / No**	
Any other comments?		